

JVC

SERVICE MANUAL

Hi-Fi STEREO VIDEO CASSETTE RECORDER **VHS**

HR-D755E/EG/EK

HQ
High Quality



SPECIFICATIONS

Format	: VHS PAL standard with Hi-Fi audio	Output level	: AUDIO/VIDEO socket (21-pin Peri connector): -3.8 dBs (CENELEC standard), high impedance load
Video recording system	: Rotary two-head helical scan system with slant double-azimuth combination video heads	AUDIO OUT connector (RCA × 2):	-6 dBs, high impedance load
Hi-Fi audio recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard	Output impedance	: Less than 1 k-ohm, unbalanced
No. of audio channels	: 2 Hi-Fi audio channels 1 normal audio channel	Signal-to-noise ratio	: More than 40 dB
Video signal system	: PAL colour and CCIR monochrome signals, 625 lines	Frequency range	: 70 Hz to 10,000 Hz
Tape width	: 12.65 mm	Audio (EK)	
Tape speed (SP)	: 23.39 mm/sec	Input	: Mic: -67 dBs, high impedance, unbalanced Line: -20 dBs 50 k-ohms, unbalanced
Maximum recording time (SP)	: 240 min. with E-240 video cassette	Output level	: -6 dBs, high impedance load
(LP)	: 480 min. with E-240 video cassette	Output impedance	: Less than 1 k-ohm, unbalanced
Temperature		Signal-to-noise ratio	: More than 40 dB
Operating	: 5°C to 40°C	Frequency range	: 70 Hz to 10,000 Hz
Storage	: -20°C to 60°C	Hi-Fi audio	
Power requirement	: 220 V~, 50/60 Hz (E/EG) 240 V~, 50/60 Hz (EK)	Frequency response	: 20 Hz - 20,000 Hz
Power consumption	: 40 W (E/EG), 38 W (EK)	Dynamic range	: More than 80 dB
Video		Wow and flutter	: Less than 0.005% WRMS
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced	TV tuner/RF section	
Output	: 1.0 Vp-p, 75 ohms, unbalanced	Channel storage capacity	: 32 channels
Signal-to-noise ratio	: 43 dB (Rohde & Schwarz noise meter) with PICTURE SHARPNESS control at centre position	Aerial input (E/EG)	: VHF 47-89 MHz, 104-300 MHz, 302-470 MHz UHF 470-862 MHz
Horizontal resolution	: 250 lines with PICTURE SHARPNESS control at centre position	Aerial input (EK)	: UHF band IV/V, channels 21-69
Audio (E/EG)		Aerial output	: UHF channels 32-40 (Adjustable)
Input	: AUDIO IN connector (RCA × 2): -20 dBs, 50 k-ohms, unbalanced AUDIO/VIDEO socket (21-pin Peri connector): -3.8 dBs (CENELEC standard), 10 k-ohms, unbalanced	Digital clock/timer	
		Clock display	: 24-hour fluorescent digital display with day and date indication
		Reference frequency	: Quartz controlled
		Start time setting	: Within one year
		Programming capacity	: 8 programmes
		Dimensions	: 435 mm(W) × 95 mm(H) × 376 mm(D)
		Weight	: 7.9 kg
		Provided accessories	: Aerial cable, Cassette tape, Infrared remote control, "R6"-size battery × 2, Audio cable (RCA-RCA)

*Specifications shown are for SP mode unless otherwise specified.
E.&O.E. Design and specifications subject to change without notice.*

NOTE: For a technical description, please refer to Technical Guide T-8052 HR-D755 PAL.

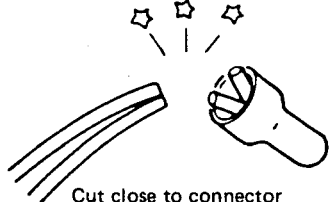
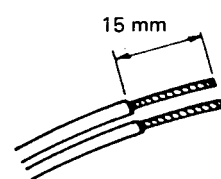
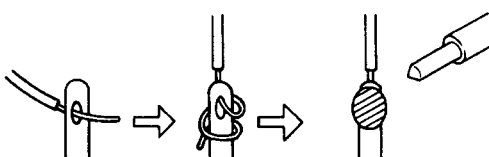
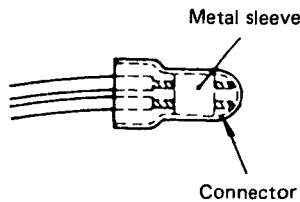
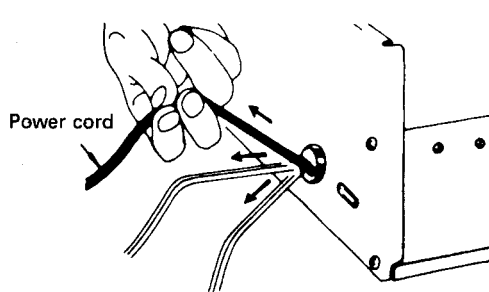
TABLE OF CONTENTS

Section	Title	Page	Section	Title	Page
Important Safety Precautions					
INSTRUCTIONS					
1. MECHANICAL ADJUSTMENTS					
1.1	BEFORE PROCEEDING	1-1	3.35	PRE/RECORDER SCHEMATIC DIAGRAM	3-38
1.2	SPECIAL TOOLS AND FIXTURES	1-1	3.36	PREAMP/MDA SCHEMATIC DIAGRAM	3-39
1.3	DISASSEMBLY	1-2	3.37	PREAMP/MDA AND PRE/RECORDER CIRCUIT BOARDS	3-40
1.4	PERIODIC MAINTENANCE	1-4	3.38	VSP SCHEMATIC DIAGRAM AND CIRCUIT BOARDS (E/EG)	3-41
1.5	MAIN ASSEMBLY PEPLACEMENT	1-5	3.39	JUNCTION, POWER SWITCH AND MEMBRANE SWITCH SCHEMATIC DIAGRAMS ...	3-42
1.6	CHECKS AND ADJUSTMENTS	1-7	3.40	JUNCTION, POWER SWITCH CIRCUIT BOARDS ...	3-43
1.7	TAPE TRANSPORT SYSTEM CHECKS AND ADJUSTMENT	1-8	3.41	RF CONVERTER AND MIX BOOSTER SCHEMATIC DIAGRAMS (E/EG)	3-44
1.8	INTERCHANGEABILITY CHECKS AND ADJUSTMENT	1-8	3.42	RF CONVERTER AND MIXBOOSTER SCHEMATIC DIAGRAMS (EK)	3-45
2. ELECTRICAL ADJUSTMENTS			3.43	REMOTE CONTROL SCHEMATIC DIAGRAM	3-46
2.1	BEFORE PROCEEDING	2-1	3.44	OVERALL WIRING DIAGRAM (E/EG)	3-47
2.2	POWER SUPPLY CIRCUIT	2-2	3.45	OVERALL WIRING DIAGRAM (EK)	3-48
2.3	TIMER CIRCUIT	2-2	4. EXPLODED VIEWS		
2.4	SERVO CIRCUIT	2-2	4.1	PACKING ASSEMBLY [M1]	4-1
2.5	VIDEO CIRCUIT	2-3	4.2	CABINET ASSEMBLY [M2]	4-2
2.6	NORMAL AUDIO CIRCUIT	2-6	4.3	CHASSIS ASSEMBLY [M3]	4-3
2.7	FM AUDIO CIRCUIT	2-6	4.4	MECHANISM ASSEMBLY [M4]-1	4-4
2.8	TUNER/IF CIRCUIT	2-7		MECHANISM ASSEMBLY [M4]-2	4-5
3. CHARTS AND DIAGRAMS			4.5	CASSETTE HOUSING ASSEMBLY [M5]	4-6
3.1	CIRCUIT BOARD LOCATIONS	3-1	4.6	REMOTE CONTROL UNIT [M6]	4-7
3.2	KEY TO ABBREVIATIONS	3-3	5. PARTS LIST		
3.3	MAIN TYPE OF ACTIVE AND PACKAGE CIRCUIT	3-4	5.1	STANDARD PART NUMBER CODING	5-2
3.4	TIMER DISPLAY BLOCK DIAGRAM	3-7		PACKING ASSEMBLY [M1]	5-7
3.5	MECHANISM CONTROL BLOCK DIAGRAM	3-8		CABINET ASSEMBLY [M2]	5-7
3.6	VIDEO BLOCK DIAGRAM	3-9		CHASSIS ASSEMBLY [M3]	5-7
3.7	AUDIO BLOCK DIAGRAM	3-10		MECHANISM ASSEMBLY [M4]	5-8
3.8	FM AUDIO BLOCK DIAGRAM	3-11		CASSETTE HOUSING ASSEMBLY [M5]	5-9
3.9	SERVO BLOCK DIAGRAM	3-12		REMOTE CONTROL UNIT	5-10
3.10	TUNER/IF BLOCK DIAGRAM (E/EG)	3-13		POWER REG (1) BOARD ASSEMBLY [01]	5-10
3.11	TUNER/IF BLOCK DIAGRAM (EK)	3-14		V/A/F BOARD ASSEMBLY [02]	5-11
3.12	DEMODULATOR BLOCK DIAGRAM (E/EG)	3-15		T/M/S (1) BOARD ASSEMBLY [03]	5-19
3.13	POWER TRANSFORMER, REGULATOR AND POWER REGULATOR SCHEMATIC DIAGRAM	3-16		TUNER/IF BOARD ASSEMBLY [04], (E/EG)	5-25
3.14	POWER TRANSFORMER, REGULATOR AND POWER REGULATOR CIRCUIT BOARDS	3-17		TUNER/IF BOARD ASSEMBLY [04], (EK)	5-27
3.15	VIDEO (LUMINANCE SECTION) SCHEMATIC DIAGRAM	3-18		DISPLAY BOARD ASSEMBLY [05]	5-29
3.16	VIDEO (COLOUR SECTION) SCHEMATIC DIAGRAM	3-19		TERMINAL BOARD ASSEMBLY [06]	5-30
3.17	AUDIO SCHEMATIC DIAGRAM	3-20		SWITCH BOARD ASSEMBLY [07]	5-31
3.18	FM AUDIO SCHEMATIC DIAGRAM	3-21		PREAMP/MDA BOARD ASSEMBLY [08]	5-31
3.19	VIDEO/AUDIO/FM AUDIO AND SWITCH CIRCUIT BOARDS	3-22		VPS/REMAIN BOARD ASSEMBLY [09]	5-32
3.20	SWITCH SCHEMATIC DIAGRAM	3-23		POWER/IFR BOARD ASSEMBLY [11]	5-33
3.21	TIMER SCHEMATIC DIAGRAM	3-24		IFR BOARD ASSEMBLY [33]	5-33
3.22	MECHANISM CONTROL SCHEMATIC DIAGRAM	3-25		AUDIO/CTL HEAD BOARD [12]	5-33
3.23	SERVO SCHEMATIC DIAGRAM	3-26		END SENSOR BOARD [13]	5-33
3.24	TIMER/MECHAON/SERVO CIRCUIT BOARD	3-27		MODE SENSOR BOARD [14]	5-33
3.25	TUNER/IF SCHEMATIC DIAGRAM (E/EG)	3-28		CASSETTE LED BOARD [15]	5-33
3.26	TUNER/IF CIRCUIT BOARD (E/EG)	3-29		DEMODULATOR BOARD ASSEMBLY [16], (E/EG)	5-33
3.27	TUNER/IF SCHEMATIC DIAGRAM (EK)	3-30		FULL ERASE HEAD BOARD [17]	5-35
3.28	TUNER/IF CIRCUIT BOARD (EK)	3-31		CASSETTE HOUSING BOARD [18]	5-35
3.29	DEMODULATOR SCHEMATIC DIAGRAM (E/EG) ..	3-32		DECK TERMINAL BOARD ASSEMBLY [20]	5-35
3.30	DEMODULATOR CIRCUIT BOARD (E/EG)	3-33		SUPPLY SENSOR BOARD [21]	5-35
3.31	DISPLAY SCHEMATIC DIAGRAM	3-34		TU REEL SENSOR BOARD ASSEMBLY [22]	5-35
3.32	DISPLAY, BACK UP AND AUDIO/CTL HEAD CIRCUIT BOARDS	3-35		MODE MOTOR BOARD [30]	5-35
3.33	TERMINAL SCHEMATIC DIAGRAM AND CIRCUIT BOARD (E/EG)	3-36		OUTLET BOARD ASSEMBLY [31], (E/EG)	5-35
3.34	TERMINAL SCHEMATIC DIAGRAM AND CIRCUIT BOARD (EK)	3-37		POWER TRANS BOARD ASSEMBLY [32]	5-35
				POWER REG (2) BOARD ASSEMBLY [34]	5-36
				PRE/REC BOARD ASSEMBLY [35]	5-36
				JUNCTION BOARD ASSEMBLY [36]	5-37
				BACK UP BOARD ASSEMBLY [37]	5-38
				REMAIN BOARD ASSEMBLY [38], (EK)	5-38
				REMOTE CONTROL BOARD ASSEMBLY [45]	5-38

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.	10. Products using cathode ray tubes (CRTs) In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.
2. Parts identified by the ⚠ symbol and shaded (■) parts are critical for safety. Replace only with specified part numbers. Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.	11. Crimp type wire connector In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps. 1) Connector part number : E03830-001 2) Required tool : Connector crimping tool of the proper type which will not damage insulated parts. 3) Replacement procedure (1) Remove the old connector by cutting the wires at a point close to the connector. Important : Do not reuse a connector (discard it).
3. Use specified internal wiring. Note especially: 1) Wires covered with PVC tubing 2) Double insulated wires 3) High voltage leads	 Cut close to connector Fig. 3
4. Use specified insulating materials for hazardous live parts. Note especially: 1) Insulation Tape 2) PVC tubing 3) Spacers 4) Insulation sheets for transistors	(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.  Fig. 4
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.  Fig. 1	(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.  Metal sleeve Connector Fig. 5
6. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)	
7. Check that replaced wires do not contact sharp edged or pointed parts.	
8. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.  Fig. 2 9. Also check areas surrounding repaired locations.	

- (4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

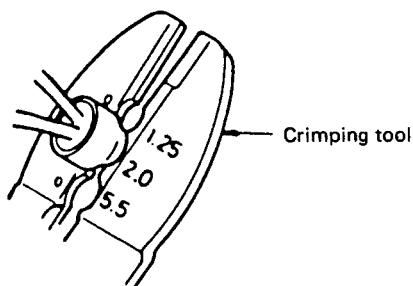


Fig. 6

- (5) Check the four points noted in Fig. 7.

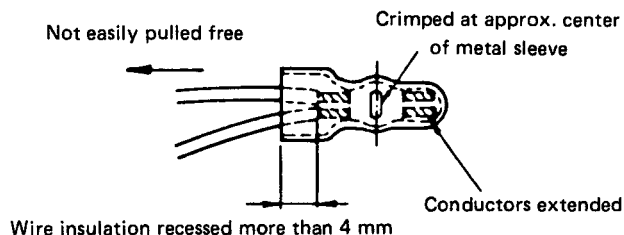


Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

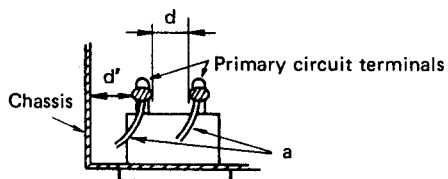


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

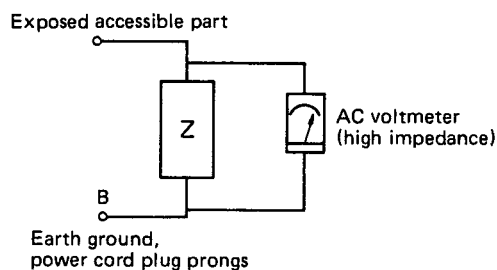


Fig. 9

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$\geq 1 \text{ m}\Omega/500 \text{ V DC}$	1 kV 1 minute	$\geq 3 \text{ mm}$
110 to 130 V	USA & Canada	—	900 V 1 minute	$\geq 3.2 \text{ mm}$
*110 to 130 V 200 to 240 V	Europe Australia	$\geq 10 \text{ m}\Omega/500 \text{ V DC}$	4 kV 1 minute	$\geq 6 \text{ mm (d)}$ $\geq 8 \text{ mm (d')}$ (a: Power cord)

*Class II model only.

Table 1 Ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (b) to:
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current ratings for selected areas

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS:

Hi-Fi STEREO VIDEO CASSETTE RECORDER

For reference, the text of the Instruction booklet for this model is reproduced in the following pages.

Numbering of the pages also corresponds with that of the booklet.

The Instructions shown pertain specifically to the Model HR-D755EG. For detailed descriptions, be sure to consult the Instruction booklets of the other models.

Main differing points with respect to other models in this series (with suffixes E, EG and EK) are also included.

The following table lists the principal differing points among the models (suffixes E, EG and EK) in this series.

Model		E		EG	EK	
Item						
Power requirement		220 V~, 50/60 Hz		←	240 V~, 50/60 Hz	
TV-Tuner	VHF BAND	47—89 MHz 104—300 MHz 302—470 MHz		←	—	
	UHF BAND	470—862 MHz		←	21—69 (channels)	
	Sound-multiplex	Yes		←	No	
Audio/Video Socket (21-pin Peri connector)		Yes		←	No	
		PERI RCA				RCA
		AUDIO IN	— 3.8 dBs — 20 dBs		AUDIO IN	— 20 dBs
		OUT	— 3.8 dBs — 6 dBs		OUT	— 6 dBs
V P S System		Yes (Internal)		←	No	
AC OUTLET		Yes		←	No	

NOTE: ← : Same as model at left

Thank you for purchasing the JVC HR-D755EG Hi-Fi Stereo Video Cassette Recorder. Before use, read this instruction booklet carefully to obtain the best results from your new unit.

CONTENTS

Features	38	Using the HR-D755EG as an audio tape deck	56
Precautions	39	Playing back a video cassette	57
Controls, indicators and connectors	40	Special-effects playback	58
Connections	45	Tape counter/Remaining time counter/Counter and	
Video channel setting	46	cue search	59
Clock setting	47	Instant recording	60
Operating the built-in tuner	49	Automatic VPS or timer recording	61
Information on the HR-D755EG's audio system	51	Recording with a video camera	67
Loading and unloading a cassette	54	Audio dubbing	67
On-screen channel, time and mode display	54	Insert editing	68
Basic operation for recording TV programmes	55	Adjust your TV receiver when	69
Recording a TV programme while watching another	56	Head cleaning	69
Recording stereo TV programmes	56	In case of difficulty	70
Recording bilingual TV programmes	56	Specifications	72
Recording FM simulcast TV programmes	56		
Recording a TV programme while recording an independent			
audio source	56		

SAFETY PRECAUTIONS

The rating plate and the safety caution are on the rear of the unit.

WARNING – DANGEROUS VOLTAGE INSIDE

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT (In the United Kingdom) Mains Supply (240 V~, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt – consult a competent electrician.

Note

We recommend that you should disconnect the AC cord from the outlet.

CAUTION

- Disconnect the mains plug from the supply socket when not in use.
- When you are not using the HR-D755EG for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

FOR YOUR SAFETY (in Australia) Install any external aerial to AS 1417.1

Omkopplaren EIN på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge EIN OFF.

The EIN button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMÆRK: I stilling OFF er apparatet stadig forbundet med lysnettet. Hvis det ønskes fuldstændig afbrudt skal netledningen trækkes ud.

This equipment has been produced to comply with Directive number 82/499/EEC.

FEATURES

High-quality pictures

- **HQ (High Quality) System technologies** for superlative VHS pictures with a luminance signal noise reduction circuit, a Detail Enhancer and a higher white clip level.
- **Double-Azimuth 4-head (DA-4) system** for quality SP (Standard Play) and LP (Long Play) recordings and noiseless field stills (SP).

High-quality sound

- **Conforms to the Hi-Fi VHS standard** for superlative stereo sound with a dynamic range of more than 80 dB.
- **Choice of manual or auto recording level control** for Hi-Fi audio.
- **Peak-hold audio level indicators/Hi-Fi Tracking meter.**

Tuner features

- **PLL frequency synthesized wide-band cable tuner** with 32-channel storage capacity.
- **Pretuned to European television broadcast frequencies:** VHF, UHF and cable channels including those of hyper band.
- **Sound Multiplex capability** for recording stereo and bilingual broadcasts.
- **10-Key random-access channel selection** and up/down scan tuning.
- **Compatible with VPS (Video Programme System)** with built-in VPS decoder.

Special features

- **Infrared remote control unit with LCD and built-in memory:** 10-key timer programming, random-access channel selection, variable-speed search are all included.
- **On-screen display** for mode check and timer programming.
- **Noiseless field stills (SP)** and frame advance.
- **Variable-speed fast-motion playback** in either direction at 3, 5 and 9 times the normal speed.
- **Variable-speed noiseless slow-motion playback** in either direction at 1/40, 1/20, 1/10 and 1/5 times the normal speed.

Automatic functions

- **Auto-power-on convenience.**
- **Automatic power on/off for cassette ejection.**
- **Counter and cue search functions.**
- **Automatic backspace editing.**
- **Automatic rewind at the end of tape.**

Other value features

- **Slim, super-low-profile design** – 95 mm in height.
- **1-Year/8-Event remote-programmable timer.**
- **Audio dubbing** (longitudinal track only).
- **Insert editing function** for increased post-production flexibility.
- **FM simulcast recording;** also allows independent TV and audio programming on the same cassette.
- **Memory backup** of about 2 to 3 months for clock and timer settings.
- **Instant recording function** with auto shut-off.
- **Shuttle Search** (with minimal noise) at 9 times normal speed.
- **Comprehensive fluorescent display** with symbolic mode indicators.
- **Picture sharpness control.**
- **Remaining tape time indicator.**
- **Microphone and headphone jacks** with headphone level control.
- **Dimmer control.**



- Only cassettes marked "VHS" can be used with this video cassette recorder.
- HQ VHS is compatible with existing VHS equipment.

COPYRIGHT © 1986 VICTOR COMPANY OF JAPAN, LTD.



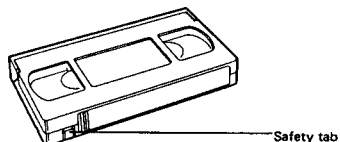
PRECAUTIONS

Handling and storage

- Avoid using the recorder under the following conditions:
 - extremely hot, cold or humid places,
 - dusty places,
 - near appliances generating strong magnetic fields,
 - places subject to vibrations, and
 - poorly ventilated places.
- Be careful of moisture condensation.
 - Avoid using the recorder immediately after moving from a cold place to a warm place or soon after heating a room which was cold. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
 - Do not block the ventilation openings.
 - Do not place anything heavy on the recorder.
 - Do not place anything which might spill and cause trouble on the top cover of the recorder.
 - Use in horizontal (flat) position only.
- In case of transportation,
 - Avoid violent shocks to the recorder during packing and transportation.
 - Before packing, be sure to remove the cassette from the recorder.

Video cassettes

- This recorder employs VHS-type cassettes only.
 - E-240 for 4 hours (SP)/8 hours (LP), E-180 for 3 hours/6 hours, E-120 for 2 hours/4 hours, E-90 for 1 hour and 30 minutes/3 hours, E-60 for 1 hour/2 hours and E-30 for 30 minutes/1 hour of recording.
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

Moisture condensation

- If you pour a cold liquid into a glass, water vapour in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the video recorder, will cause damage to the tape.
- Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, after heating a cold room or under extremely humid conditions.
- This recorder is equipped with a moisture condensation prevention circuit which automatically heats the head drum according to the ambient temperature. This circuit operates when the unit is plugged into an AC outlet.
- The moisture condensation prevention circuit consumes only a slight amount of power. However, if for some reason you are not using the recorder for a long period of time, it is advisable to remove the power cord from the AC outlet.
- Since the moisture condensation prevention circuit cannot evaporate existing moisture condensation immediately after the power cord has been plugged into the AC outlet, you must allow for a few hours if the recorder is to be used in such areas as would occasion moisture condensation.

Operation

- When a cassette is loaded, the power is switched on automatically.
- The cassette can be unloaded even when the power is off. Pressing the KASSETTE button turns the power on and, after ejection of the cassette, shuts it off automatically in this case.
- As long as the SCHALTUHR button is engaged with TIMER indicator lit, the EIN and KASSETTE buttons have no effect and loading or unloading of a cassette is not possible. Do not force a cassette into the slot in this situation.

Remote control unit

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

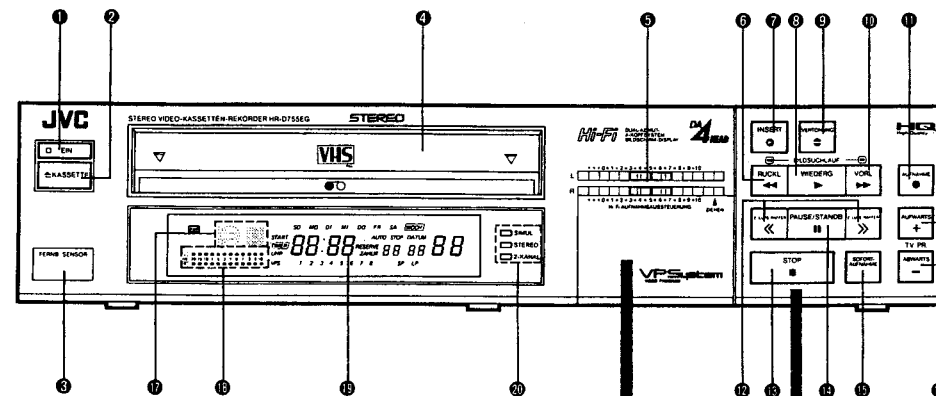
WARNING

1. This recorder can also receive colour television signals in East Germany (DDR) for recording and playback.
2. Recordings made of DDR television signals produce monochrome pictures if played back on another video recorder of PAL or SECAM standard.
3. SECAM prerecorded cassettes or recordings made with a SECAM video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used in France. Use a SECAM recorder to record French SECAM signals.

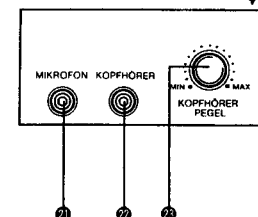
CONTROLS, INDICATORS AND CONNECTORS

Keep this page opened so that you can refer to it at any time when you are reading this booklet.

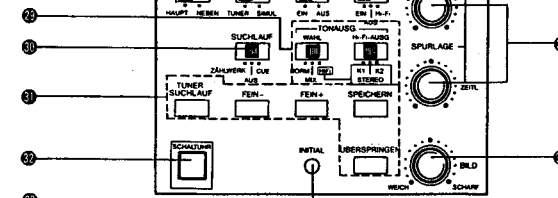
Front panel



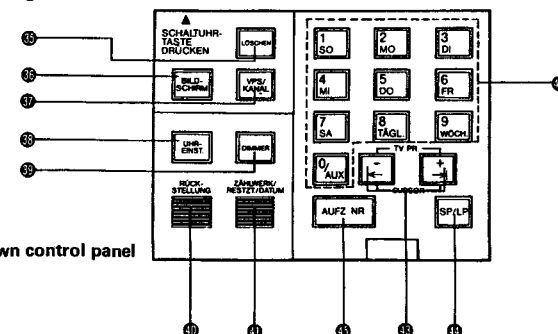
Front connector panel



Sub-control panel



Flip-down control panel



1 EIN button with LED indicator

Loading a cassette also turns the power on.

2 Cassette eject button (KASSETTE)

3 Infrared beam receiving window (FERNB. SENSOR)

4 Cassette loading slot

Insert a VHS video cassette. The door will close and the indicator showing that a cassette is inside will appear on the lower door flap and the FDP (fluorescent display panel).

5 Hi-Fi audio recording level controls (Hi-Fi AUFNAHME-AUSSTEUERUNG)

See page 52.

6 Rewind/Shuttle search button (RÜCKL./BILDSUCHLAUF)

To rewind the tape, press this button while in the Stop mode. To view the speeded-up picture in the reverse direction for programme search, hold this button pressed while in the Play mode.

7 INSERT button

Press this button for insert editing. See page 68.

8 Play button (WIEDERG.)

Press to play back the tape or cancel the Pause/Still mode. Also press this button together with the AUFNAHME button 1 for recording or with the VERTONUNG button 9 for audio dubbing.

9 Audio dub button (VERTONUNG)

Press this button together with the WIEDERG. button 8 for audio dubbing. Audio dubbing is possible only on the longitudinal audio track. See page 67.

10 Fast forward/Shuttle search button (VORL./BILDSUCHLAUF)

To fast forward the tape, press this button while in the Stop mode. To view the speeded-up picture in the forward direction for programme search, hold this button pressed while in the Play mode.

11 Record button (AUFNAHME)

Press together with the WIEDERG. button 8 for video and audio recording.

12 Variable-speed search buttons (Z. LUPE/RAFFER)

Press either the "◀" or "▶" button to search for a specific segment of the programme at variable speeds. To cancel the variable-speed Search mode, press the WIEDERG. button. For more details see page 58.

13 STOP button

To stop the tape.

14 Pause/Still button (PAUSE/STANDB.)

Press to stop the tape temporarily to avoid recording of unwanted material or to view a still picture. The still picture can be advanced each time this button is pressed. Keeping this button pressed advances the picture continuously to give a slow-motion effect.

15 Instant record button (SOFORTAUFNAHME)

Use this button to start recording instantly and stop automatically after a predetermined time. (See page 60.)

16 Channel +/- buttons (TV PR.)

Press and hold the "+" or "-" button to quickly review channels which are higher or lower than the currently tuned channel. Release the +/- button when the desired channel number appears on the FDP (fluorescent display panel).

These buttons can also be used as cursor keys in the clock and timer setting modes, exactly the same way as the CURSOR keys on the flip-down control panel.

17 Symbolic mode indicator

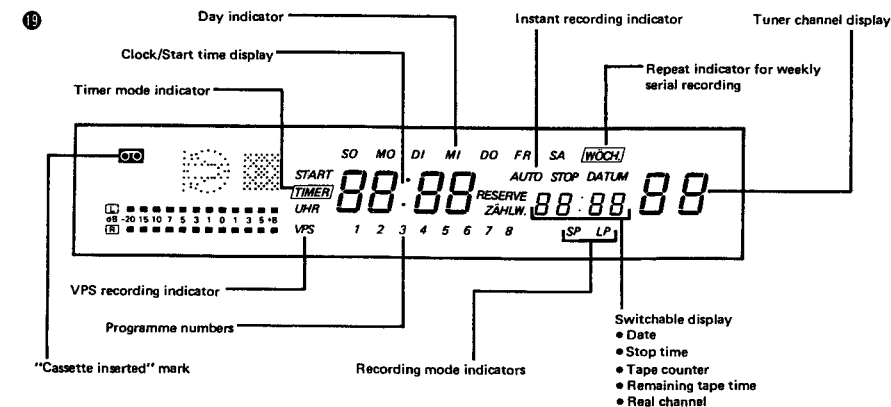
Illuminates to give quick, easy visual reference of the operating mode. Combinations of 6 different symbols indicate 13 operating modes:

PLAY:	▶	REWIND:	◀◀
STILL:	⏏	FAST FORWARD:	▶▶
RECORD:	●	REVERSE SHUTTLE SEARCH:	◀◀▶▶
RECORD PAUSE:	⏏●	FORWARD SHUTTLE SEARCH:	▶▶◀◀
AUDIO DUB:	⌂	INSERT:	⌂▶
AUDIO DUB PAUSE:	⌂⏏	INSERT PAUSE:	⌂⏏
		SLOW:	◀◀◀◀

18 Audio level/Hi-Fi tracking indicators

See page 52.

19 Fluorescent display panel (FDP)



20 LED indicators

SIMUL: Lights when the AUFNAHME-WAHL switch 19 is set to SIMUL.

STEREO: Lights when a stereo programme is being received.

2-KANAL: Lights when a bilingual programme is being received.

21 Microphone jack (MIKROFON)

22 Headphone jack (KOPFHÖRER)

23 Headphone level control (KOPFHÖRER-PEGEL)

Adjusts the level of audio output from the KOPFHÖRER jack.

24 Bilingual select switch (2-KANALTON)

HAUPT: to record the main soundtrack (local language).

NEBEN: to record the sub soundtrack (foreign language).

For more details, see pages 51 and 56.

25 Source select switch (AUFNAHME-WAHL)

For selecting the recording input signal.

TUNER: To record signals coming from the built-in tuner.

SIMUL: To record the video signal and normal audio signal from the built-in tuner and the hi-fi audio signal from the rear panel AUDIO-EING. connectors. When recording FM simulcast TV programmes, use this position.

26 Audio limiter switch (AUDIO-BEGRENZER)

See page 52.

27 Level indicator switch (PEGELANZEIGE)

See page 52.

28 Tracking controls (SPURLAGE)

Use either control to eliminate noise bars, if observed during playback: NORMAL for normal playback, ZEITL. for slow-motion playback.

Hi-fi audio tracking can also be optimised using the NORMAL control. See page 57.

29 Audio monitor switches (TONAUSG.)

See page 53.

30 Tape memory switch (SUCHLAUF)

See page 59.

31 Tuner programming controls

Use these controls for re-programming the tuner in the Real Channel mode. See pages 49 and 50.

32 Timer button (SCHALTUHR)

Press after you have preset the timer for unattended recording. See page 61.

33 Display initialization button (INITIAL)

Inside the hole in a small button. Press it with a pointed object to initialize the memory for the FDP display, when required. Normally do not touch this button.

34 Picture sharpness control (BILD)

Turn this knob clockwise to make the picture sharper. Turn counterclockwise to give the picture a softer tone. Effective only for playback pictures. (No effect for recording.)

35 Programme cancel button (LÖSCHEN)

Press this button to cancel or "clear" the programmed data.

36 On-screen display button (BILDSCHIRM)

Press to call up a mode indication on the TV screen; the engaged mode will appear together with the tuned-in channel and clock time, and disappear automatically after 5 seconds. On-screen mode check is also available automatically when the corresponding controls are operated. See page 54.

This button is also used to engage the on-screen timer set mode; for this purpose, press the AUFZ. NR. button, and then the BILDSCHIRM button. (With the remote control, simply press the AUFZ. NR. button to engage the on-screen timer programming mode, with the DIREKT/GESPEICHERT switch set to DIREKT.) See page 64.

37 VPS/KANAL button

For VPS recording (see page 63) or to engage the Real Channel mode (see page 49).

38 Clock adjust button (UHREINST.)

Press this button for clock setting. See page 47.

39 DIMMER button

The brightness of the display can be subdued by pressing this button.

40 Reset button (RÜCKSTELLUNG)

Press to reset the tape counter reading to "0000".

41 Counter/Remaining time/Date button (ZÄHLWERK/RESTZT./DATUM) (ANZEIGE on remote control)

Press to switch the middle 4-digit display among tape counter, remaining tape time and date. Can also be used to change the entire display from the Timer Set mode to the Clock mode. (See page 59.)

42 Multi-purpose numeric keys

For channel selection, see page 49.

For clock setting, see page 47.

For timer programming, see page 61.

The "0" key also functions as the AUX mode select button. To record from a source connected to the rear panel AUDIO/VIDEO socket, obtain "0" in the channel display by pressing the "0" key.

43 Cursor keys (CURSOR/TV PR.)

The "←" key moves the cursor (flashing position) back, and the "→" key advances the cursor. Use these keys to reach preprogrammed positions for correction. Also usable for channel up/down scanning.

44 SP/LP button

Press to select the recording mode. The selected mode will be displayed on the fluorescent display.

SP (Standard Play): 4 hours of recording with E-240 cassette.

LP (Long Play): 8 hours of recording with E-240 cassette.

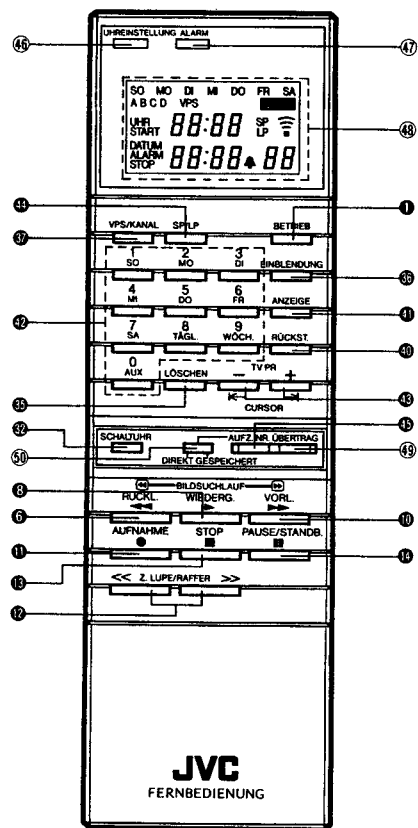
45 Timer programming button (AUFZ. NR.)

Press this button when you want to preset the timer for unattended recording. See page 61.

Remote Control Unit

The infrared remote control unit gives you full operation control from your viewing position. Incorporating its own memory and display, this remote control can be used to programme the timer or as an alarm clock.

Infrared remote control unit



The maximum operating distance is about 8 m. Buttons with the same identification numbers as those of the recorder have the same functions.

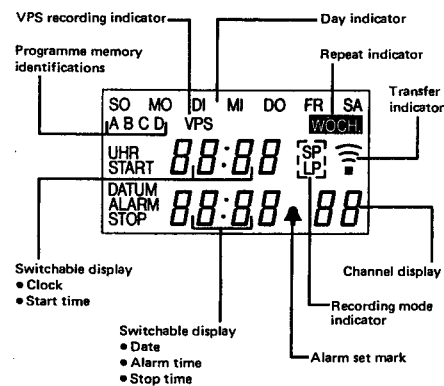
46 Clock adjust button (UHREINSTELLUNG)

Press to set the clock time. See page 48.

47 ALARM button

Press to set the alarm time. See page 48.

48 Liquid Crystal Display



49 Transfer button (ÜBERTRAG)

Press to transfer the data held in the memory to the recorder; clock time and programmed timer data can be transferred. See page 48 or 65.

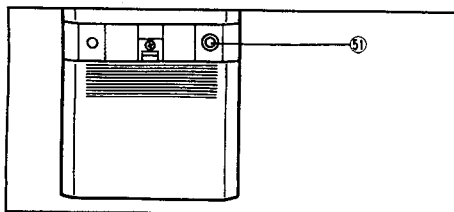
50 Direct/Store switch (DIREKT/GESPEICHERT)

DIREKT: Set to this position when programming the timer directly from the remote control.

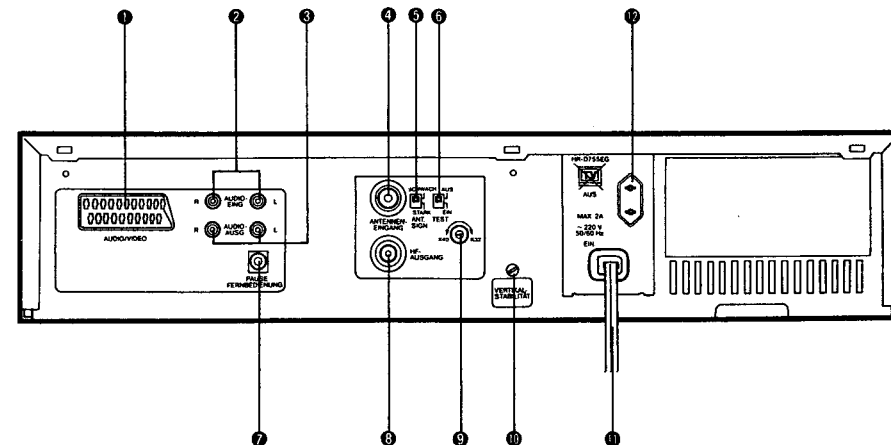
GESPEICHERT: Set to this position when storing the programmed timer data in the remote control's memory. The stored data can be transferred to the recorder later. See page 65.

51 Display initialization button (CLEAR)

Press it with a pointed object to initialise the memory for the LCD display, when required. Normally do not touch this button.



Rear Panel



1 AUDIO/VIDEO socket

A 21-pin standardised audio/video input/output socket for the connection to a stereo TV equipped with the same type of socket. The audio output can be selected with the TONAUSG. WAHL switch.

2 Audio input connectors (AUDIO-EING.)

Connect an audio tape recorder or other audio sources for recording sound.

3 Audio output connectors (AUDIO-AUSG.)

Both hi-fi and normal audio signals can be obtained from these connectors. The output can be selected with the TONAUSG. WAHL switch.

4 Antenna input connector (ANTENNEN-EINGANG)

Connect an aerial to this connector.

5 Antenna signal attenuator switch (ANT. SIGN.)

Set to SCHWACH to receive broadcasts from distant stations. Set to STARK to receive broadcasts of high field strength. Use a screwdriver for setting this switch.

6 Test signal switch (TEST)

Set to EIN when tuning your TV receiver for the video channel. A test signal in the form of two vertical white bars will be available.

7 Remote pause control terminal (PAUSE

FERNBEDIENUNG)
When using a JVC video camera, connect the remote control cable of the camera adapter to this terminal for the purpose of controlling the starting and stopping of the tape with the camera's start/stop switch.

8 RF output connector (HF-AUSGANG)

Connect to the aerial connector of a TV receiver through the aerial cable (provided).

9 RF converter frequency adjustment screw

See page 46.

10 Vertical lock adjustment screw (VERTIKAL-STABILITÄT)

When operating in the Still mode, adjust this screw to eliminate any vertical vibration of the picture, by using a screwdriver.

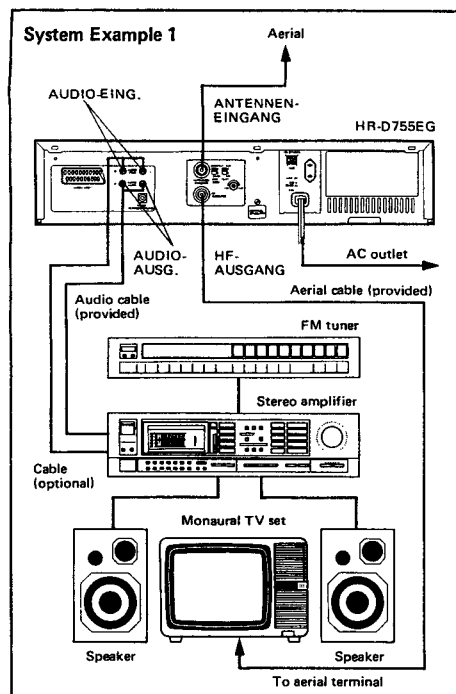
11 Power cord

12 AC outlet (AUS)

Connect the power cord of other audio or video equipment (such as an FM tuner) requiring less than 2 amperes of power.

This outlet supplies power (220 V~, 50/60 Hz) regardless of the EIN switch setting as long as the power cord of the HR-D755EG is plugged in.

CONNECTIONS

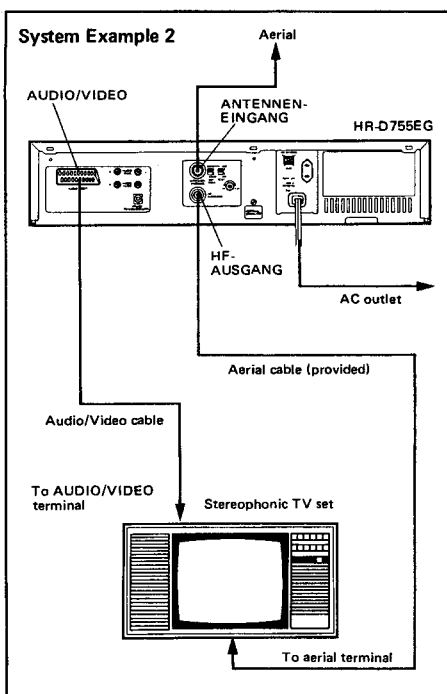


Procedure

1. Remove the aerial cable from the TV receiver and reconnect to the HR-D755EG.
2. Connect the HR-D755EG to the TV receiver using the aerial cable (provided).
3. Connect the AUDIO-EING. L and R connectors of the HR-D755EG to the recording output terminals of the amplifier. (Exactly as one hooks up an audio cassette deck.)
4. Connect the AUDIO-AUSG. connectors of the HR-D755EG to the AUX IN terminals of the amplifier.

Notes:

- Observe L and R when connecting the audio input and output connectors of the HR-D755EG to a stereo amplifier.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected audio system.
- When listening to sound from the connected stereo system, turn down completely the sound volume of the TV receiver.
- Listening to stereophonic sound is also possible using stereo headphones connected to the front panel KOPFHÖRER jack.
- With this setup, you can enjoy prerecorded hi-fi stereo video tapes in hi-fi stereo) while viewing them on a regular TV receiver, and also you can record FM simulcast television programmes with hi-fi audio accompaniment. See page 56.



CAUTION

- The HR-D755EG has a dynamic range of more than 80 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture will not be normal because of mutual interference.

For customers who own a stereo TV equipped with a standardised audio/video socket

By connecting the 21-pin AUDIO/VIDEO socket of the HR-D755EG to your TV's audio/video socket, it is possible to play stereo tapes through the TV's speakers. In this case, use the A/V mode specified on your TV, instead of UHF channel 36.

VIDEO CHANNEL SETTING

ATTENTION

To view video programmes through the HF-AUSGANG terminal, you must set the TV's channel selector to the output channel of the RF converter. To view video programmes through the AUDIO/VIDEO socket, use the A/V mode specified on your TV.

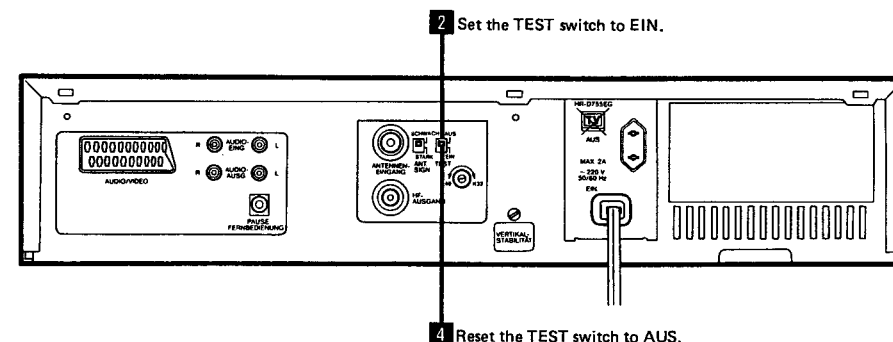
The signal from the RF converter is viewed through a vacant channel not used for broadcasting. The converter channel of all units is set to UHF channel 36 prior to shipment. Setting your TV receiver to UHF channel 36 may provide video playback. However, to obtain the best possible reproduction on your TV receiver, accurate adjustment to the RF converter output is required.

Procedure

1. Turn on the recorder by pressing the front panel EIN button. Turn on the TV receiver.



3. Adjust your TV receiver in the vicinity of UHF channel 36 until you bring in the two white signal bars on the screen as illustrated. This setting is now the VIDEO CHANNEL of the TV receiver to which the HR-D755EG is connected.



2. Set the TEST switch to EIN.

4. Reset the TEST switch to AUS.

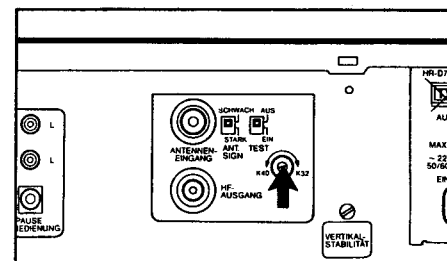
Notes:

- When you adjust your TV receiver to channel 36 for video playback, if some interference noise is seen on the screen because of broadcasts on neighbouring channels or if your preset broadcasts should be affected in picture quality, it is necessary to shift the RF converter output frequency from that of channel 36.

For this purpose, insert a screwdriver into a hole provided on the rear of the set and re-adjust the RF converter frequency adjustment screw in minute steps. Then tune the TV receiver once again until a clear picture is obtained.

This adjustment requires extreme precision and must be done with the utmost care. We recommend that you consult your JVC dealer for making this adjustment.

- Be sure to set the TEST switch to AUS after VIDEO CHANNEL tuning has been completed.
- No signal is available from the AUDIO/VIDEO socket while the test signal is being used.
- If a prerecorded VHS cassette is available, TV adjustment for VIDEO CHANNEL setting is also possible using it to obtain a playback picture. Insert the cassette and operate the HR-D755EG for playing back the cassette. Then tune the TV receiver to obtain clear pictures and sound while monitoring the playback picture on the TV screen.
- If your TV receiver is not provided with an AFC circuit, perform fine tuning of the TV receiver when you are actually viewing video cassettes.

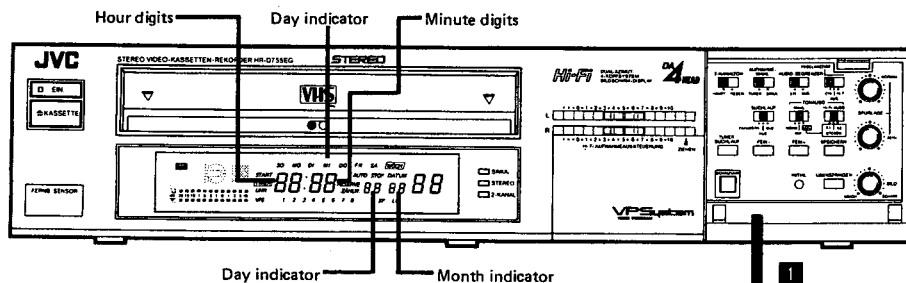
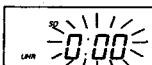


CLOCK SETTING

Clock setting for the recorder

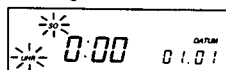
Plug the HR-D755EG into an AC outlet. The display shows a flashing 0:00 with SO and UHR illuminated. This initial display also functions as a power failure indicator.

Power failure indicator



- 1 Open the sub-control panel door. (Insert your fingertip into the side slot and pull forward.)
- 2 Press UHREINST.

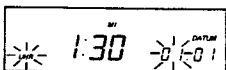
The display will change to the Clock Set mode with "SO" and "UHR" flashing.



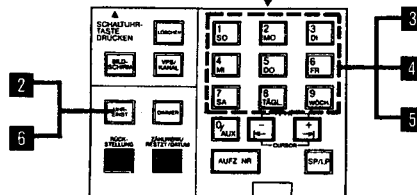
- 3 Press one of the numeric keys "1 (SO)" to "7 (SA)" that corresponds to the day of setting. The hour digits will start flashing.



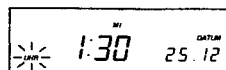
- 4 Set the hour and minute in that order.



- The flashing position is ready for entry.
- To set a one-digit number, first press "0", then press the numeric key for 1 to 9.
- Zero will not be displayed in the tens place of the hour indication unless the cursor is moved back to the hour digits.



- For a two-digit number, simply press the corresponding numeric keys in the right order.
 - In hour setting, numbers larger than 23 will be rejected.
 - In minute setting, numbers larger than 59 will be rejected.
- 5 Set the day and month in that order.
- The flashing position is ready for entry.
 - The setting method is the same as for time setting.
 - In day setting, invalid numbers such as 32 of January or 30 of February will be rejected.
 - In month setting, numbers larger than 12 will be rejected.



- 6 Press UHREINST.

- Press it at the exact instant of the time signal, and the clock will be set accurately to the present time.

Notes:

- If you press a wrong numeric key, you can return to the previous position using the reverse CURSOR key [←].
- Once all necessary data have been entered, you can reach any position for correction using the reverse and forward CURSOR keys [←] [→].
- Readjust the date in leap years.

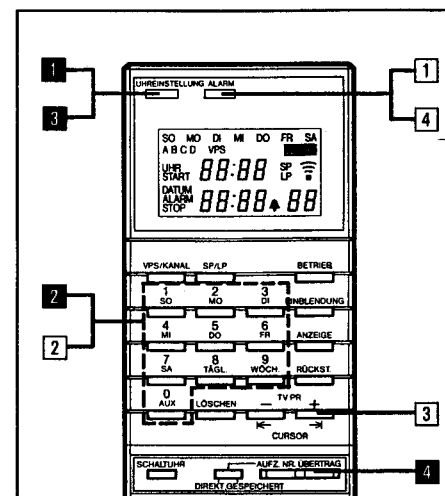
Clock/timer memory backup

- The built-in memory backup battery allows for correct time-

keeping for about 2 or 3 months after the recorder is unplugged from the AC outlet. During this period of power outage, the preprogrammed timer data are also maintained, although the display blacks out.

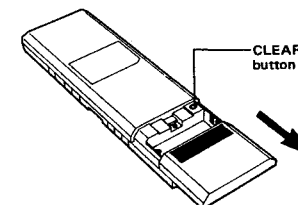
- When the backup time is expired, the power failure indicator shown above will appear when power is reapplied.
- The memory backup battery is being recharged when the recorder is not in use. For the fully-depleted battery to be recharged sufficiently for backup of about 2 or 3 months, it takes about 3 days.

Clock setting for the remote control unit



Installing the batteries

1. Slide the battery compartment cover on the rear of the unit in the direction of the arrow (▶).



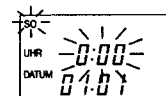
2. Insert two "R6"-size batteries (provided) in the correct direction into the battery compartment.
3. Press the CLEAR button with a pointed object.
4. Replace the cover.

Note:

- Replace the batteries when the LCD display becomes blurred or the unit does not function properly.

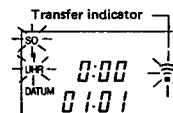
Clock setting

The recorder's clock can also be adjusted from the remote control unit if its transfer function is used. The initial display after battery replacement will be as follows:

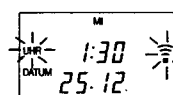


- 1 Press UHREINSTELLUNG. (using a pointed object).

- The display will change to the Clock Set mode and, at the same time, the transfer indicator will blink.
- If no further command is given for 10 seconds, the Clock Set mode will be cancelled.
- Timekeeping continues even in the Clock Set mode until the first numeric key is pressed.



- 2 Set the day, time and date in the same manner as described on the previous page, using the 10 numeric keys and the CURSOR keys if necessary.



- 3 Press UHREINSTELLUNG.

- The clock will start and only the transfer indicator will continue blinking.

- 4 If you want to transfer the clock data, press ÜBERTRAG.

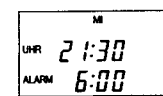
- Transmission will take place and all items will stop blinking. Using this method, the clock data can be transferred any time to the recorder to keep both clocks in sync.

To use the remote control as an alarm clock

- 1 Press ALARM (using a pointed object).
- The date indication will change to the alarm time (initially 00:00 with its hour digit blinking).



- 2 Set the alarm time in the same way as for setting the clock time, using the 10 numeric keys.



- 3 Press TV PR. + button.

- The alarm set mark will appear.
- Press TV PR. - button to disengage the alarm set mode. (The alarm set mark will disappear.)

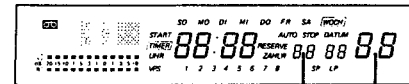


- 4 If you want to have the date indication, press ALARM.

- When the alarm time is reached, electronic beeps will be heard for 15 seconds.
- To stop the alarm sound midway, press any button.
- While the alarm is beeping, the remote control unit cannot function as a remote control for the recorder.

OPERATING THE BUILT-IN TUNER

The HR-D755EG incorporates an advanced frequency synthesizer tuner which is pretuned to 112 channels to cover VHF, UHF and CATV broadcasts. Channel indication is given in two different ways: real channel numbers and channel position numbers. Real channel number indication is available by pressing the VPS/KANAL button, while channel position number indication is always available in the channel display.



Real channel number display
Channel position number display

Correspondence between 112 pretuned TV stations and the HR-D755EG's real channel indications

DISPLAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Ch	—	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	A	B	C	D	E	F	G
CC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19
DISPLAY	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Ch	H	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31	E32	E33	E34	E35	E36	E37	E38
CC	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30	S31	S32	S33	S34	S35	S36	S37	S38
DISPLAY	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
Ch	E39	E40	E41	E42	E43	E44	E45	E46	E47	E48	E49	E50	E51	E52	E53	E54	E55	E56	E57
CC	S39	S40	S41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
DISPLAY	58	59	60	61	62	63	64	65	66	67	68	69	75 76 77						
Ch	E58	E59	E60	E61	E62	E63	E64	E65	E66	E67	E68	E69	— — —						
CC	—	—	—	—	—	—	—	—	—	—	—	—	X Y Z						

Stored channels

A total of 112 channels are receivable. Of them, up to 32 can be stored for easy channel selection. Prior to shipment, some channels are stored.

It is possible to store more channels or skip some channels if there are no broadcasts on those channels in your area. It is possible to change the stored channels to correspond to your preferred channel allocation. Skipped channels can be restored whenever necessary.

- Channel memories are permanent; the programmed channel allocation will not be erased even if the recorder is unplugged from the AC outlet.

Channel selection

To select a channel for recording, normally use the TV, PR, -/+ buttons or 10 numeric keys. You can choose any channel from among the stored ones by calling up the corresponding channel position number.

- Use the TV, PR, "-" button to scan to a channel in the direction of decreasing numbers; the TV, PR, "+" button, in the direction of increasing numbers.

- When using the 10 numeric keys, pay attention to the following: When 1, 2 or 3 is entered, it blinks for about 2 seconds. To set channel 1, 2 or 3, leave it blinking until it remains lit. To key in a two-digit number, enter the 2nd number while 1, 2 or 3 is blinking. The number entered first will be shifted to the tens place and channels 10 to 32 can be set. If you enter an invalid number (larger than 32), the channel display will return to the previous figure after 2 seconds.

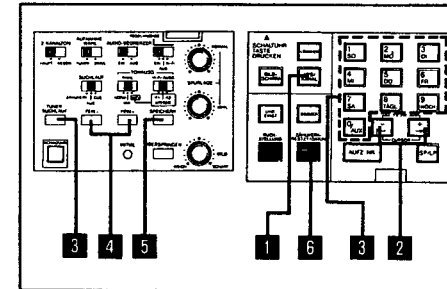
If you want to select a channel other than those stored, engage the Real Channel mode by pressing the VPS/KANAL button and call up a channel either by pressing the TUNER SUCHLAUF button or random-access 10-key channel selection, while referring to the real channel number display.

To disengage the Real Channel mode, press the ZÄHLWERK/RESTZT./DATUM button.

Changing the stored channels

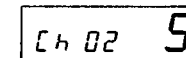


Turn the TV receiver to ON and adjust it to your video channel.

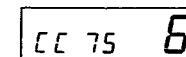


- Press the VPS/KANAL button.

The middle 4-digit display will change to the Real Channel mode and show the real channel number of a station stored for that position.



VHF channel 2 is stored for channel position 5.



Cable channel 75 is stored for channel position 6.

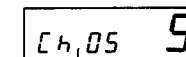
- Call up the channel position number for which you wish to change the stored TV station.

- For this purpose, press either the TV PR, "-" or "+" button. Channel positions from 0 to 32 appear successively. "0" indicates that the unit is in the external input mode usually referred to as AUX.

- Select a TV station which you wish to store into that position.

- Pressing the VPS/KANAL button changes the band and alternates the band indication between "Ch" (for VHF and UHF) and "CC" (for Cable). Select the appropriate indication.

- You can scan to the real channel number corresponding to the desired station by pressing the TUNER SUCHLAUF button. Pressing the TUNER SUCHLAUF button initiates automatic scanning from real channel number Ch 02 to 69, CC 01 to 41, 75, 76, 77, then back to Ch 02. When a broadcast is detected, scanning stops automatically. To advance to the next station, press the TUNER SUCHLAUF button. When the button is held pressed, scanning is performed in the reverse direction for as long as the button is held pressed.



"Colon" will appear to indicate that this real channel is not stored for the indicated channel position.

- You can key in that real channel number using 10 numeric keys. 70, 71, 72, 73, 74 and numbers larger than 77 are invalid numbers. If an invalid number is keyed in, the previously selected channel will be received.

- If the picture quality is unsatisfactory due to ghosts or other noise, perform fine tuning.

- For this purpose, press either the FEIN "-" or "+" button. The Fine Tuning mode will be engaged.



Upper or lower "-" sign indicates the operating tuning frequency is above or below the standard broadcast frequency. Centre "-" sign will appear when it corresponds to the standard.

Then press either the FEIN "-" or "+" button, depending on the direction of fine adjustment, so that the picture clears up. Each time the button is pressed, the picture condition changes in a single increment. Continuous changing is also possible by keeping the button pressed. If the tuning frequency falls on the next station, the channel number advances as well. If no command is given for 2 seconds after either FEIN button has been pressed, the Fine Tuning mode will be automatically cancelled. To cancel the Fine Tuning mode instantly, press the VPS/KANAL button.

- If the picture is not clear after all procedures, perform fine tuning on your television.

- Distorted pictures or sound will be recorded if fine tuning has not been properly performed. Exercise care with this adjustment since the recorded picture and sound cannot be adjusted later.

- After confirming both the real channel number and channel position number, press the SPEICHERN button. "Colon" will disappear.

- The selected station will be stored in memory.

- Press the ZÄHLWERK/RESTZT./DATUM button to disengage the Real Channel mode.

Skipping the stored channels

- Call up the channel position number that you wish to skip by using the TV PR, buttons or 10 numeric keys.

- Press the VPS/KANAL button.

- Press the ÜBERSPRINGEN button.

"Colon" will appear to indicate that the displayed real channel is not stored.

- Press the ZÄHLWERK/RESTZT./DATUM button to disengage the Real Channel mode.

- The skipped channel number will not appear on the channel display during up/down scan tuning.

Restoring the skipped channels

- Press the VPS/KANAL button to engage the Real Channel mode.

- In this mode, all channel position numbers 1 through 32 are available in the channel display.

- Select the channel position number that you wish to restore by using the TV PR, "-" or "+" button.

- Select a real channel that you wish to restore in that channel position by using the TUNER SUCHLAUF button or 10 numeric keys.

- After confirming both the real channel number and channel position number, press the SPEICHERN button.

- Press the ZÄHLWERK/RESTZT./DATUM button to disengage the Real Channel mode.

INFORMATION ON THE HR-D755EG'S AUDIO SYSTEM

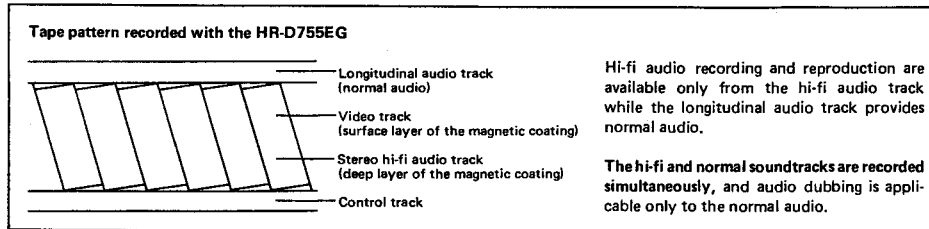
Hi-Fi and normal audio

To provide true hi-fi audio accompaniment to video entertainment and, at the same time, compatibility with regular VHS tapes, the HR-D755EG employs a unique audio recording system. Hi-fi audio signals (2-channel) are recorded deep into the tape's magnetic coating, and the video signal is recorded on top of the audio signals in a shallower layer. At the same time, another audio head records normal audio signals (monaural) onto the usual longitudinal audio track.

Since this longitudinal audio track is exactly the same as on regular VHS tapes, tapes recorded on the HR-D755EG can be played back on other VHS machines, and vice versa. Also, this longitudinal track can be replaced later with new recordings through audio dubbing.

CAUTION:

The hi-fi soundtrack recorded with the HR-D755EG cannot be reproduced with video equipment other than Hi-Fi VHS.



Recording options according to the selected input mode

Track		Video track	Normal audio track (mono)	Hi-fi audio track (2-channel)
Input mode				
TUNER 	TV picture (from built-in tuner)	TV sound (from built-in tuner) (Mixing with microphone input is possible.)		
SIMUL 	TV picture (from built-in tuner)	TV sound (from built-in tuner)	Audio signal from AUDIO-EING. (Mixing with microphone input is possible.)	
AUX 	Video signal from AUDIO/VIDEO	Audio signal from AUDIO/VIDEO (Mixing with microphone input is possible.)		
Channel display section				

Notes:

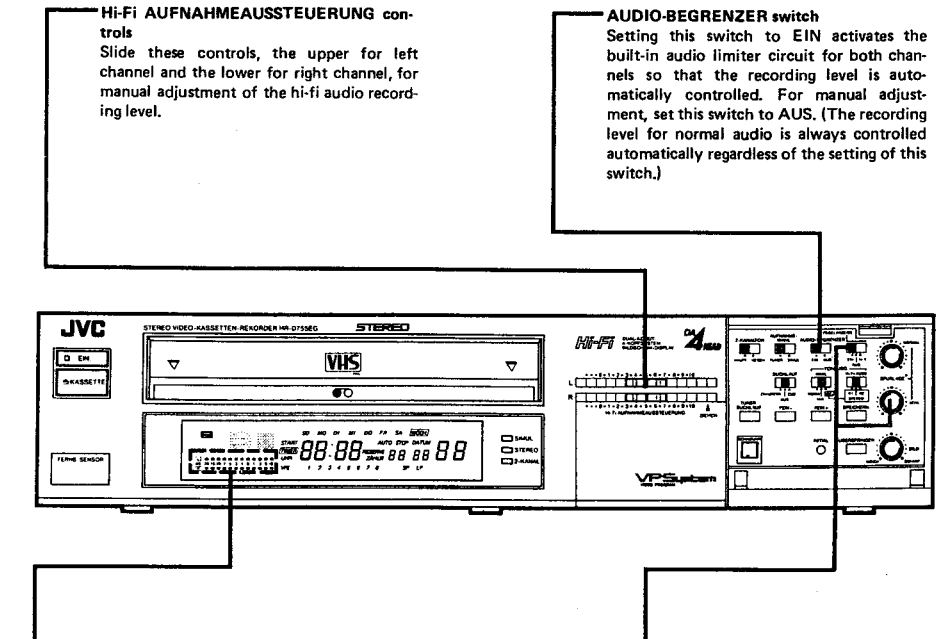
- To engage the AUX mode, press the "0" key of the 10-digit keypad.
- Microphone input will always be mixed with the audio signals on the hi-fi or normal audio track. Only when the AUFNAHME-WAHL switch is in the SIMUL position, the normal audio track is not affected by the microphone input. Therefore, do not leave a microphone connected to the MIKROFON jack unless needed.
- You can record audio only (without recording any video signal) on the hi-fi audio track. This means you can record a continuous 8-hour FM programme onto a single cassette (E-240). For this purpose, set the AUFNAHME-WAHL switch to SIMUL and connect an audio source, such as an FM tuner, to the AUDIO-EING. connectors. And tune the built-in tuner to a vacant channel.

Recording options according to the type of broadcasts and the setting of the 2-KANALTON switch

Type of broadcast	2-KANALTON switch position	Audio Track	Normal audio track (mono)	Hi-fi audio track (2-channel)	
				L	R
Regular (monaural audio)	Either position		Mono	Mono	Mono
Stereo broadcast	Either position		L + R mixed	Stereo	
Bilingual broadcast	HAUPT	Main soundtrack (local language)		Main soundtrack (local language)	Sub soundtrack (foreign language)
	NEBEN	Sub soundtrack (foreign language)			

Hi-Fi audio recording level adjustment

While recording onto the normal audio track is controlled by the built-in Automatic Level Control circuit, hi-fi audio recording has two control options: manual and automatic.



Audio level indicators

For manual control of the recording level, first set the relevant switches as follows:

AUDIO-BEGRENZER → AUS
PEGELANZEIGE → EIN
TONAUSG. WAHL → **Hi-Fi**

Then slide the Hi-Fi recording level controls referring to these indicators. When indicators up to or near 0 dB light for the loudest signal being applied, the recording level is optimum. (The level at which only one red indicator lights from time to time may be most appropriate.)

During playback, these indicators show the level of audio signals recorded on the tape.

These indicators do not light when the PEGELANZEIGE switch is in the AUS position.

Notes:

- With the TONAUSG. WAHL switch in the MIX or NORM position, the recording level of hi-fi audio signals cannot be correctly indicated. Select the Hi-Fi position when adjusting the recording level.
- The normal audio signal level is also displayed by these indicators, but cannot be adjusted.

AUDIO-BEGRENZER switch

Setting this switch to EIN activates the built-in audio limiter circuit for both channels so that the recording level is automatically controlled. For manual adjustment, set this switch to AUS. (The recording level for normal audio is always controlled automatically regardless of the setting of this switch.)

PEGELANZEIGE switch and SPURLAGE control

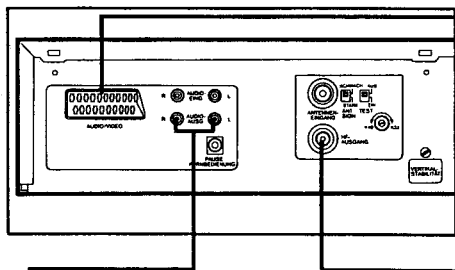
The right-channel audio level indicator also functions as a tracking meter during playback. If noise or breaks are sensed in the reproduced sound from the hi-fi audio track or noise bars are visible on the screen, attempt to correct using the SPURLAGE NORMAL control while referring to the meter. For this purpose, set this switch to Hi-Fi and turn the SPURLAGE NORMAL control so that the greatest number of elements of the right-channel indicator light. When this switch is set to AUS, the indicators do not light, regardless of whether during recording or playback.

Note:

- When playing back a tape with no recording on the hi-fi audio track, the level indicator does not light when the PEGELANZEIGE switch is set to Hi-Fi.

Dual-audio playback flexibility

Two different types of audio tracks (hi-fi and normal) allow a variety of playback options depending on the connection and the settings of relevant controls and switches.



AUDIO/VIDEO socket

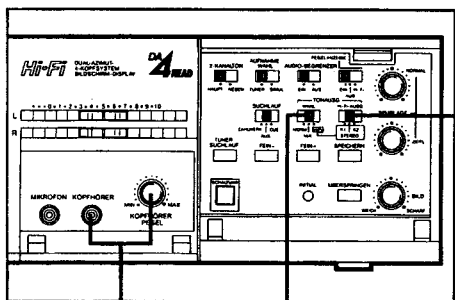
Delivers audio (both hi-fi and normal) and video signals. (Also accepts audio and video signals for recording from other video equipment.)

HF-AUSGANG connector

Delivers audio (both hi-fi and normal) and video signals to a TV receiver. When the recorder is not used, the aerial signal is supplied from this connector to the TV receiver to allow regular TV viewing; when a video tape is played back through the HF-AUSGANG connector, the audio is reproduced always as monaural; with hi-fi stereo tapes, both channels are mixed or the one selected by the TONAUSG. Hi-Fi-AUSG. switch is reproduced. Therefore, for stereo playback, connect a stereo system to the AUDIO-AUSG. connectors or a stereo television to the AUDIO/VIDEO socket.

AUDIO-AUSG. connectors

Delivers the audio signals from both hi-fi and normal audio tracks.



TONAUSG. Hi-Fi-AUSG. switch

Selects the channel (left, right or both) for listening. Use this switch when playing back hi-fi stereo tapes or tapes containing independent soundtracks on two hi-fi channels.

- Set to K1 to listen to the left channel sound.
- Set to STEREO to listen to a stereo soundtrack.
- Set to K2 to listen to the right channel sound.

Note:

- This switch functions during recording as well, although it has no effect on the recorded signal.

TONAUSG. WAHL switch

Selects hi-fi audio, normal audio or a mixture of the two.

- Set to Hi-Fi to listen to hi-fi audio.
- Set to MIX to listen to both audio tracks.
- Set to NORM to listen to normal audio.

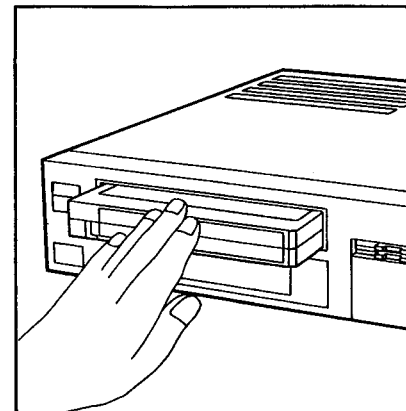
Notes:

- This switch functions during recording as well, although it has no effect on the recorded signal.
- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two soundtracks, probably with some distortion, in the MIX position. Therefore, in such a case, use the Hi-Fi or NORM position.

KOPFHÖRER jack and KOPFHÖRER-PEGEL control

Delivers the audio signals from both hi-fi and normal audio tracks. The headphone output level is adjustable with the KOPFHÖRER-PEGEL control.

LOADING AND UNLOADING A CASSETTE



Loading

Insert a cassette with its labelled side facing you.

- With a cassette inserted, a door flap displays the mark and the mark appears on the FDP to indicate "cassette inserted".

Note:

It might be that, after unpacking your new recorder, the "cassette inserted" mark can be seen already. This does not indicate a defective unit. Simply insert a cassette. After the first loading/unloading cycle, the door will function properly; the flap with the mark will appear when a cassette is inside and be replaced with one without a mark when the cassette is removed.

Unloading

Press KASSETTE. The cassette will be ejected.

New motorised loading system

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.
- The cassette can be unloaded even when the power has been turned off. If a cassette is inside, pressing the KASSETTE button turns the power on automatically and, after ejection of the cassette, shuts it off automatically.

Notes:

- Be sure to insert the cassette firmly into the slot; otherwise, it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- A cassette inverted cannot be inserted.

Caution

- If loading or unloading of a cassette is not possible, check to see whether the SCHALTUHR button is engaged with the TIMER indicator on the FDP lit. If so, press it to turn off the indicator.
- Do not attempt to pull out the cassette once automatic loading has started.
- Do not insert fingers or any foreign object beyond the door flaps of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

ON-SCREEN CHANNEL, TIME AND MODE DISPLAY

Automatic indication

• Channel

Each time a different channel is selected, the number of that tuned-in channel is displayed on the TV screen for 5 seconds.

• Time

Each time the channel number or the operation mode is displayed, the clock time display appears together with it.

• Mode

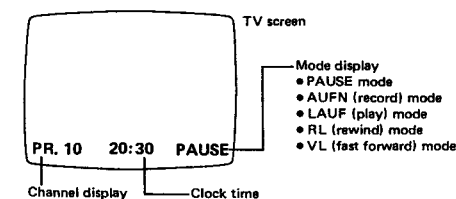
Each time the operation mode is changed to Record, Play*, Pause**, Fast Forward or Rewind from any other mode, that engaged mode is displayed for 5 seconds.

Note:

* The "LAUF" indication appears only when the Play mode is engaged from the Stop mode and the tape is being loaded. It disappears when playback starts. Because of this, recording of the playback picture with a superimposed "LAUF" indication is avoided during tape-to-tape transfers. By the same logic, when the mode is changed from Still (with PAUSE indication) to Play, the "LAUF" indication will not appear on the screen.

** The "PAUSE" indication remains displayed as long as the

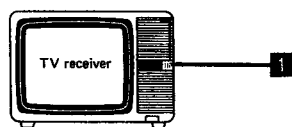
Pause mode is engaged during recording to avoid any recording mishaps.



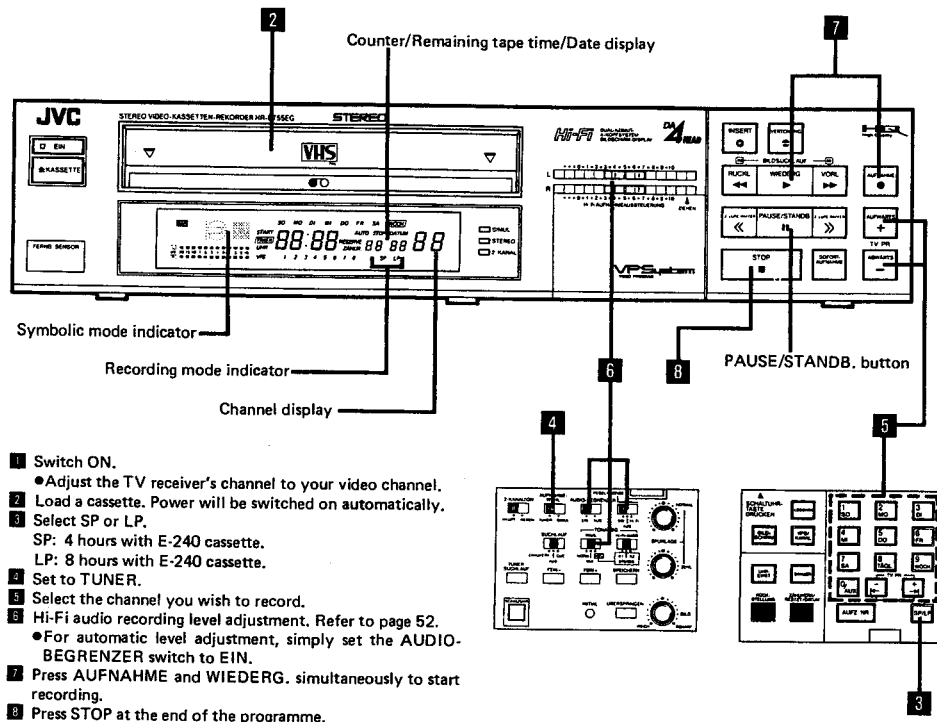
Manual recall

- For anytime checking of the channel, time or mode, press the BILDSCHIRM button or the remote control's EINBLENDUNG button. The corresponding indication will be available on the screen for 5 seconds.
- To cancel this display before 5 seconds have elapsed, press the same button.

BASIC OPERATION FOR RECORDING TV PROGRAMMES



This section describes the step-by-step procedure for recording a TV programme while watching it, assuming that it is a regular (monaural audio) programme. For other recording options, refer to the next page where variations from this basic operation are described.



- 1 Switch ON.
● Adjust the TV receiver's channel to your video channel.
- 2 Load a cassette. Power will be switched on automatically.
- 3 Select SP or LP.
SP: 4 hours with E-240 cassette.
LP: 8 hours with E-240 cassette.
- 4 Set to TUNER.
- 5 Select the channel you wish to record.
- 6 Hi-Fi audio recording level adjustment. Refer to page 52.
● For automatic level adjustment, simply set the AUDIO-BEGRENZER switch to EIN.
- 7 Press AUFNAHME and WIEDERG. simultaneously to start recording.
- 8 Press STOP at the end of the programme.

Notes

- If there is part of the programme you don't want to record, press the PAUSE/STANDB. button. To release the Pause mode, press the WIEDERG. button.
- When recording is restarted from the Pause mode, assemble recording is performed so that the playback picture will not distort at the edit point. A few frames recorded before the pause are erased due to overlap of the new recording. This is not due to any defect of the unit.
- When a recording containing assemble edits (segments recorded using the PAUSE function) is played back, colour noise may appear momentarily at edit points. This is not due to any defect of the unit.
- When the Pause mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.
- The built-in tuner's automatic channel lock mechanism prevents the selected channel from being altered during recording. Therefore, if you wish to change the channel during recording, first engage the Pause mode and then select a different channel.
- Sound from a microphone connected to the MIKROFON jack can be mixed with the TV sound being recorded.
- If the AUFNAHME button cannot be engaged, check to see if the cassette safety tab has been removed. (See page 39.)
- When the end of the tape is reached during recording, the tape is automatically rewound to the beginning and stops.
- Press the ZÄHLWERK/RESTZT./DATUM button to check how much recording time is left. (For more details refer to page 59.)

RECORDING A TV PROGRAMME WHILE WATCHING ANOTHER

A programme not being viewed can be recorded while you enjoy another programme. This permits the recorded programme to be played back later at your convenience. The recording procedure is exactly the same as described on the previous page. The points to be remembered are:

- Select the channel you wish to record with the recorder's channel select buttons.
- Select the channel you wish to view with the TV receiver's channel selector.

RECORDING STEREO TV PROGRAMMES

If stereo TV programmes are broadcast in your area, the HR-D755EG automatically receives them in stereo. When a stereo programme is being received, the STEREO indicator lights and recording is made in stereo on the hi-fi audio track and in mono (mixed L + R) on the normal audio track. To listen to the stereo soundtrack during recording, set the TONAUSG. WAHL switch to Hi-Fi and the TONAUSG. Hi-Fi-AUSG. switch to STEREO. If the latter is left either in the K1 or K2 position, you will hear only one channel while recording, though the recording is being made in stereo.

RECORDING BILINGUAL TV PROGRAMMES

When a bilingual TV programme is being received, the 2-KANAL indicator lights. To record. There is a switch to select the soundtrack to be recorded on the normal audio track, however, because both soundtracks are recorded always on the hi-fi track for selective listening, you can ignore the switch labelled 2-KANALTON in most cases unless you need a specific soundtrack on the normal audio track.

- Set the 2-KANALTON to HAUPT to record the main soundtrack (local language); to NEBEN to record the sub soundtrack (foreign language).
- To listen to the selected soundtrack from the hi-fi audio track while recording, set the TONAUSG. WAHL to Hi-Fi and the TONAUSG. Hi-Fi-AUSG. to either channel.
- To listen to the soundtrack being recorded on the normal audio track, set the TONAUSG. WAHL switch to NORM.

RECORDING FM SIMULCAST TV PROGRAMMES

FM simulcast TV programmes can be recorded using an FM stereo tuner. Connect necessary components. (Connect the FM tuner to the rear panel AUDIO-EING. connectors.) Select the TV channel broadcasting the simulcast programme with the recorder's channel select buttons and tune the FM stereo tuner to the station broadcasting the soundtrack for this TV programme.

The only difference from the basic recording procedure is in step 2.

- Set the AUFNAHME-WAHL switch to SIMUL. Then the SIMUL indicator will light. With this setting, the video and audio signals from the built-in tuner will be recorded on the video and normal audio track and the audio signal from the FM stereo tuner will be recorded on the hi-fi audio track.

Notes

- After finishing recording, be sure to set the AUFNAHME-WAHL switch to TUNER.
- While recording simulcast programmes, it might happen that the hi-fi sound distorts momentarily at switching points between different programmes. This is not due to any defect of the unit.

RECORDING A TV PROGRAMME WHILE RECORDING AN INDEPENDENT AUDIO SOURCE

Using the "simulcast" recording function, you can record independent audio and video programmes, because the TV soundtrack is not lost, but recorded on the normal audio track. While recording a TV programme, record any audio source independently.

- Connect an audio component (such as an FM tuner) to the AUDIO-EING. connectors.
- Set the AUFNAHME-WAHL switch to SIMUL.

Notes

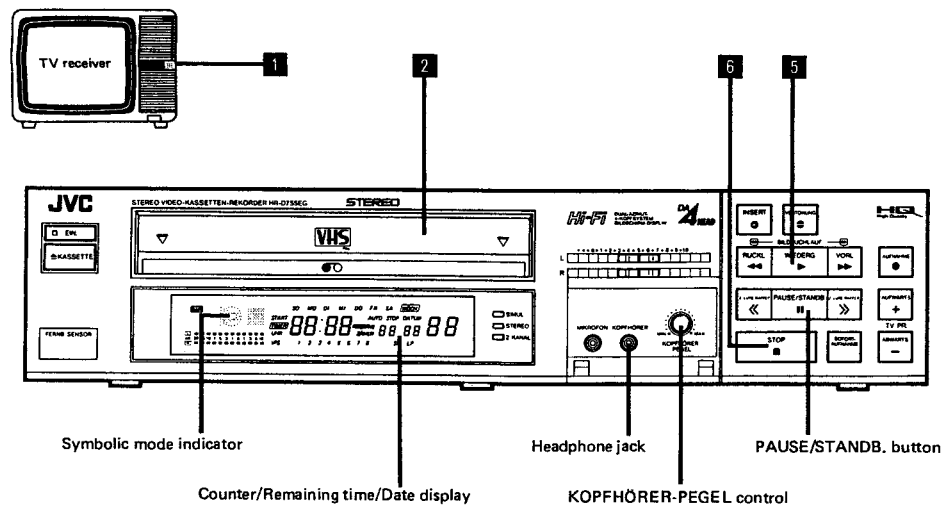
- If you stop recording to avoid unwanted material of the TV programme using the PAUSE/STANDB. button, the audio programme from an external source is also cut.
- If television broadcasting comes to an end during recording, the hi-fi sound being recorded from an external source may distort. It is recommended that you check the timetable of TV broadcasts in advance.
- After finishing recording, be sure to set the AUFNAHME-WAHL switch to TUNER; otherwise recording on the hi-fi audio track from the built-in tuner will not be possible.

USING THE HR-D755EG AS AN AUDIO TAPE DECK

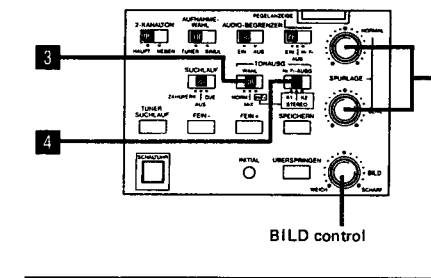
You can record audio only (without recording any video signal) on the hi-fi audio track. This means you can record a continuous 8-hour FM programme onto a single cassette (E-240).

- Connect an audio source (such as an FM tuner) to the AUDIO-EING. connectors.
- Tune the built-in tuner to a vacant channel.
- Set the AUFNAHME-WAHL switch to SIMUL.

PLAYING BACK A VIDEO CASSETTE



- 1 Switch ON.
Adjust the TV receiver's channel to the video channel.
- 2 Load a pre-recorded cassette. Power will be switched on automatically.
- 3 Set the TONAUSG. WAHL switch as required.
 • To play back hi-fi recorded tapes, set this switch to Hi-Fi.
 • To play back tapes with mixed sound of hi-fi and normal audio tracks (to enjoy hi-fi audio while at the same time listening to a narration dubbed onto the normal audio track), set this switch to MIX.
 • For normal monaural (or stereo) recorded tapes, set this switch to NORM.
- 4 Set the TONAUSG. Hi-Fi-AUSG. switch as required. (Effective only for hi-fi audio.)
 • To play back hi-fi stereo tapes, set this switch to STEREO.
 • To play back hi-fi tapes having independent soundtracks, set to the corresponding channel (K1 or K2).
 • Hi-fi monaural tapes can be played back at any setting of this switch. However, it is advisable to set this switch to STEREO for better sound quality.
- 5 Press WIEDERG.
- 6 Press STOP at the end of the programme.



SPURLAGE controls

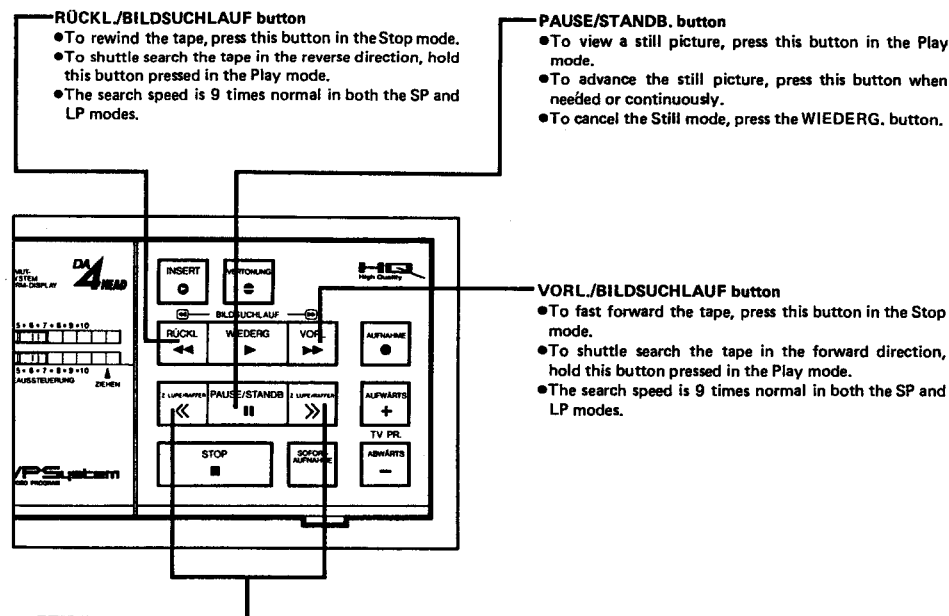
If the playback picture contains noise bars (this is likely to happen when you play back a cassette which was recorded with a different video recorder unit), adjust the SPURLAGE controls. Use the NORMAL control in normal-speed playback, and the ZEITL. control in slow-motion playback. Turn them slowly in either direction until the noise bars move out of the picture frame. The NORMAL control can also be used to correct hi-fi audio reproduction if noise or breaks are heard in it. See page 52.

- Images on the screen can be adjusted to a preferred softer or sharper definition by turning the BILD control in the corresponding direction.
- When listening through headphones, if the volume is too weak or too loud, adjust the KOPFHÖRER-PEGEL control for comfortable listening.

Notes:

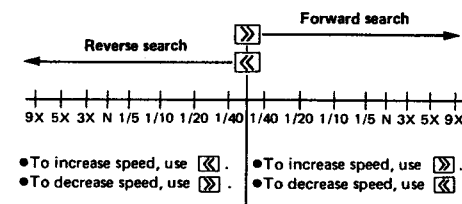
- The SP/LP button may be in either position. The SP or LP mode recording is automatically detected and played back at a correct speed respectively. The engaged mode will be displayed on the FDP.
- The tape-end auto-rewind mechanism functions in both the Play and Fast Forward modes.

SPECIAL-EFFECTS PLAYBACK



Z. LUPE/RAFFER buttons

- To search in the forward direction, press the » button in the Play mode; slow-motion playback at 1/40 the normal speed is engaged.
To increase the speed (to 1/20, 1/10, 1/5, normal, 3X, 5X and 9X), press the » button; to decrease the speed, press the « button. Pressing this « button from 1/40, the direction changes to reverse search.
- To search in the reverse direction, press the « button in the Play mode. Slow-motion reverse playback at 1/40 the normal speed is engaged.
To increase the speed, press the « button; to decrease the speed, press the » button. Pressing this » button from 1/40 changes the direction to forward search.



Notes:

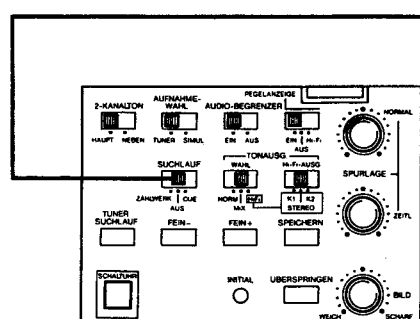
- No audio is available in the special-effects modes.
- When an LP recording made by a different machine is played back, still pictures may have more noise bars.
- When the Still mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.
- With some televisions, the still picture may be unstable. This is not due to any defect of the unit.

- If vertical vibration of the picture is noticed when operating in the Still mode, turn the rear panel VERTIKAL-STABILISIERUNG screw slowly to correct it, referring to the TV screen.

CAUTION:

When a tape recorded from SECAM B/G broadcasts in the LP mode is played back, colours disappear if special effects are applied.

TAPE COUNTER/REMAINING TIME COUNTER/COUNTER AND CUE SEARCH



SUCHLAUF switch

A. Counter Memory function

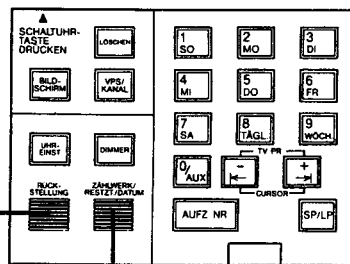
1. Press the ZÄHLWERK/RESTZT./DATUM button to engage the Counter mode.
2. Press the RÜCKSTELLUNG button at a point which you may wish to locate later.
 - The tape counter will indicate "0000".
3. Set the SUCHLAUF switch to ZÄHLWERK.
4. Press the RÜCKL. (or VORL.) button when you need to return to the designated point. The tape will rewind (or fast forward) and stop at about the "0000" counter reading.

B. Cue Search function

At the beginning of every recording, a cue signal is recorded on the tape. The cue search function enables the sensing of this cue signal and stops the tape at a point where a new recording was made. Similarly to the counter search function, this mode is applicable only in the Fast Forward and Rewind modes. If you wish to view the recorded material immediately after it was made, set the SUCHLAUF switch to CUE. After recording, if you rewind the tape, it stops automatically where the recording was initiated (the cue signal position).

Notes:

- The cue signal is recorded in the following cases:
 - (1) When a recording is initiated from the Stop mode ("Stop" to "Record").
 - (2) When a timer recording is initiated ("Timer Stand-by" to "Record"). (If several programmes are recorded continuously, no cue signal is recorded between programmes. If there is a time period between the end of one programme and the start of another, a cue signal is recorded when the new programme is started.)
 - (3) When a recording is initiated from the Play mode by pressing the WIEDERG. button together with the AUFNAHME button ("Play" to "Record").



ZÄHLWERK/RESTZT./DATUM button

When the EIN button is pressed, or a cassette is inserted, the tape counter appears on the display with the ZÄHLW. indicator illuminated. To check the length of tape left, press the ZÄHLWERK/RESTZT./DATUM button to engage the Remaining Time Counter mode. The RESERVE indicator will light and the reading will show the remaining tape length in hours and minutes. (It will take a brief period for the numerals to appear). To change the display mode back to the tape counter, press the same button once again.

Notes:

- During recording, the remaining tape length is calculated in reference to the recording mode selected by the SP/LP button; during playback, it is calculated in reference to the recording mode of the tape being played (SP/LP).
- The indicated remaining time is approximate. The time required to calculate the remaining tape length and the accuracy of that calculation may vary according to the type of cassette tape. (The remaining time indication is not available if this mode is engaged from Fast Forward or Rewind.)

RÜCKSTELLUNG button

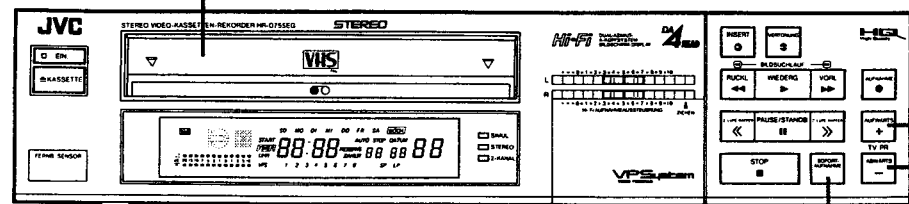
Press to reset the tape counter to "0000" for indexing the tape.

Note:

Unless the RÜCKSTELLUNG button is pressed, the count is maintained even after the EIN button is pressed to off (as long as the unit is plugged into an AC outlet).

INSTANT RECORDING

Besides starting and stopping a recording as usual, the HR-D755EG offers a more convenient possibility: starting by the push of a single button, and recording will stop automatically after a certain period of time. Use this facility for starting a recording before you go to bed or leave home.



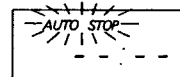
1 Load a cassette.

2 Set to TUNER.

3 Select the channel from which you want to record. (Numeric keys can also be used.)

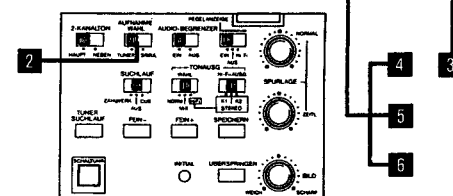
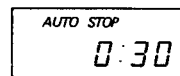
4 Press SOFORTAUFNAHME.

- The following indication will appear on the display, to show that the recorder is ready to start recording.
- The AUTO STOP indicator on the display will flash.



5 Press SOFORTAUFNAHME once again.

- Recording will begin immediately and the following indication will appear on the display, showing that recording will automatically stop and power will switch off after 30 minutes.
- The AUTO STOP indicator remains lit.



6 Each time the SOFORTAUFNAHME button is pressed, recording time increases by 30 minutes up to 4 hours.

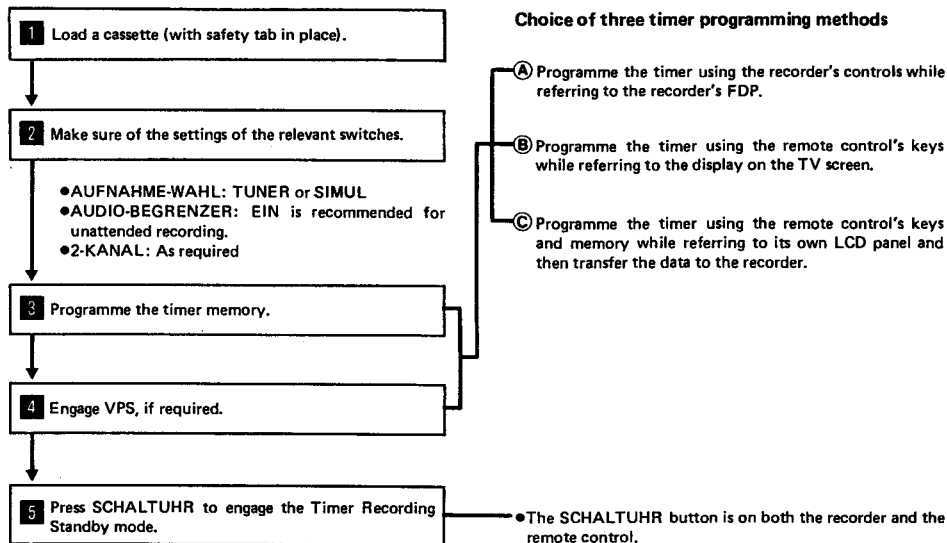
- For a more precise time setting, use the numeric keys after recording has started. For this purpose, after "0:30" has appeared, specify the time using the numeric keys and press the SOFORTAUFNAHME button immediately. (Always key in a full number including hours and minutes. For "0:35", key in zero first.)

Notes:

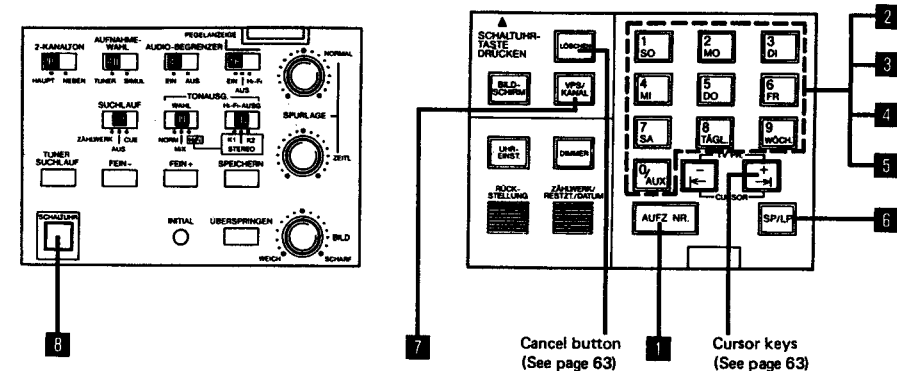
- If the SOFORTAUFNAHME button is not pressed a second time within about 10 seconds after it has been pressed once, the Instant Record mode will be cancelled and the display will change back to the Counter mode.
- If you want to change the time setting again after the SOFORTAUFNAHME button has been pressed for memorisation of new data, simply press SOFORTAUFNAHME and redo the programming.
- While recording is in progress, the displayed time counts down; when 0:00 is reached, the Record mode is released after 10 seconds and the power is switched off.
- If you want to stop recording after having started recording in the Instant Record mode, press the STOP button.
- The instant recording function can also be used as a sleep timer. If you press the SOFORTAUFNAHME button during normal recording, the AUTO STOP indicator will light on the display and the indication "0:30" will be obtained, showing that recording will stop automatically after 30 minutes. The time span can be adjusted in the same way as for instant recording.
- If the start time of one preset VPS programme is reached during instant recording, the Instant Record mode is immediately cancelled and the VPS programme is executed. During VPS recording, the SOFORTAUFNAHME button does not function at all.
- If the SOFORTAUFNAHME button is pressed with a non-recordable cassette loaded (one with its safety tab removed), the cassette will be automatically ejected.
- If you want to perform instant recording after you have set the timer and pressed the SCHALTUHR button, press the SOFORTAUFNAHME button as usual. Power will be turned on and instant recording will start. After instant recording has been performed, the Timer mode is automatically re-entered and power is turned off.
- If the programmed switch-on time for a timer recording should come after the switch-off time of the instant recording, this timer recording will still be made automatically.

AUTOMATIC VPS OR TIMER RECORDING

Basic Procedure

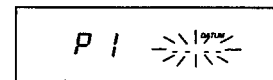


A Programme the timer using the recorder's controls while referring to the recorder's FDP panel

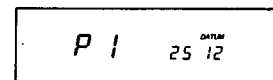


1 Press AUFZ. NR.

The display will change to the Timer Set mode with P 1 illuminating and the date display section flashing. You are ready to enter the data into No. 1 programme memory. To advance to programme numbers 2 – 8, press again. After programme 8, the Clock mode will be engaged.



2 Enter the date using numeric keys.

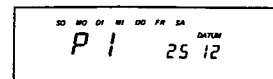


•Invalid numbers will be rejected.

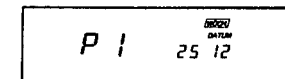
•To record a daily serial starting on the day of setting, move the cursor with the "←" button to the START time setting without entering any date figure.

•When both day and month data have been entered, the display will change to the time setting mode and the programme number will be displayed at the bottom of the FDP panel.

•To record a daily serial starting on a certain day, press [8] (TAGL.) and enter the date.

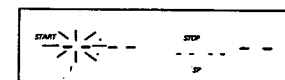


- The "daily" entry can be cancelled by pressing [8] again.
- To record a weekly serial, press [9] (WÖCH.) and enter the date.

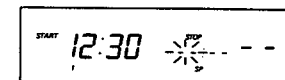


- The "weekly" entry can be cancelled by pressing [9] again.
- Both "daily" and "weekly" information can be entered or cancelled also in the time setting stage.

3 Key in the start time.



- To key in a one-digit number of hours or minutes, first press [0]. Then press the relevant numeric key.
- The minute digits will start flashing after keying in the hour.
- The hour digits of the "STOP" time will start flashing after keying in the start time.



VPS recording

VPS stands for the Video Programme System which adds flexibility to timer recording with a video cassette recorder. In this system, TV stations transmit special VPS codes using a multiplex system while certain programmes are being broadcast; the codes are different for different programmes. These VPS codes control the starting and stopping of the video recorder and have precedence over times preset in the timer. Using the VPS function, if a programme starts earlier or later than scheduled or overruns its scheduled time, it will be recorded from start to finish. The HR-D755EG incorporates a VPS decoder which detects the VPS codes and controls power on/off and tape start/stop. First programme the timer, then, if you switch on the VPS function, all timer data – date, start time, stop time and channel – are converted to VPS codes and stored in memory. When the VPS function is not engaged, the timer starts and stops recording in the usual way. If the VPS function is engaged, the HR-D755EG will enter the VPS standby mode at 20:00 on the day previous to the preset day and remain engaged until 3:59 on the following day, if the intended programme has not been broadcast. This means that if the required programme starts within this 32-hour period it will be recorded correctly.

One-year calendar timer

"One-year" presetting capacity means that you can "reserve" a recording on any day, even one year in advance. One extreme case: If the date entry corresponds to the current day and the START time is set to a time before the current time, recording will start on the same day next year.

8-Programme timer

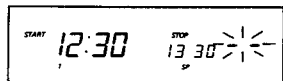
"8-Programme" presetting capacity means that you have 8 separate timers which contain different programming data. Because of this capacity, you can even "reserve" 8 different TV programmes, either on the same day or on different days.

Each programme (No. 1 through No. 8) contains information on "date" (or "daily"), "start time", "stop time", "TV channel number", "SP or LP" and "VPS or regular".

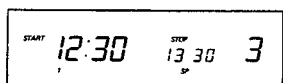
Example of the contents of one programme entry:

Pro-gramme number	TV channel number	Date	Start time	Stop time	Recording mode	VPS
2	12	05.12	10:30	11:30	LP	VPS

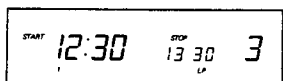
- 4 Key in the stop time in the same manner as the start time.
 • The digits of the channel display will start flashing after keying in the stop time.



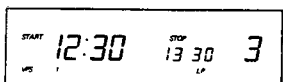
- 5 Enter the channel.
 • Invalid numbers will be rejected.
 • For a two-digit number, enter the second digit while the digit entered first is blinking. (See page 47.)



- 6 Select the recording speed by pressing SP/LP.



- The SP or LP entry can be made anytime while in the Timer Set mode.
 7 For VPS recording, press VPS/KANAL button.
 • VPS can be entered or cancelled anytime while in the Timer Set mode by pressing VPS/KANAL.

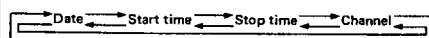


- 8 Press SCHALTUHR.

- The TIMER indicator will light. (For error indications, see page 66.)
 • The display will return to the Clock mode, also showing the programme numbers for which recording data has been programmed.

How to use the cursor keys

- If you press a wrong key and the flashing position has advanced, press CURSOR "←" to return to the previous position for correction.
- Once all data have been programmed, you can reach any position for correction using CURSOR "←" or "→". The flashing position is ready for re-entry.
- The cursor (flashing position) advances or returns in the following order.



(Pressing AUFZ. NR. engages the check mode in which no position flashes and data correction is not possible. To correct the data, press either cursor key; "+" to move to "Date" or "←" to move to "Channel".)

Setting the DATUM, START and STOP times

- It is not possible to set the DATUM, START and STOP times unless the date and the clock time have previously been set.
- Enter the data while the digit positions are flashing.
- Unless the START time has been properly set, STOP time setting is not possible.
- The STOP time can be set within 24 hours from the START time. If the hour setting for the STOP time runs into the following day, there is no need to set the day. Recording will stop at the preset time on the following day.
- Non-applicable numbers (such as January 32, February 30 for dates, 24 or larger for hours, 60 or larger for minutes and 33 or larger for channels) will be rejected when keyed in.
- In leap years, be sure to readjust the date in the clock mode, otherwise timer recording will not be performed correctly.

Last-channel memory

- The currently tuned channel locks in the Timer Set mode and, when the display returns to the Clock mode, the locked channel is displayed.

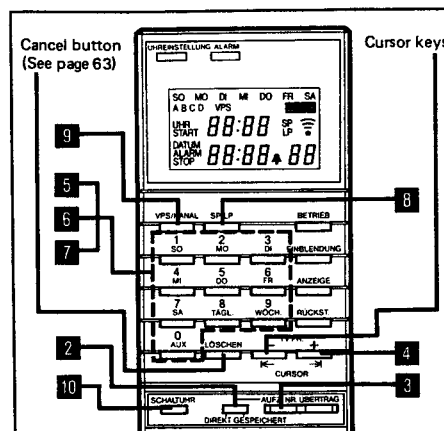
Cancelling the preset data

- The preset programmes can be cancelled by pressing the LÖSCHEN button. For this purpose, first engage the Timer Set mode for the number you wish to cancel and then press the LÖSCHEN button.
- Unless the VPS mode is engaged, an executed programme is automatically cleared.

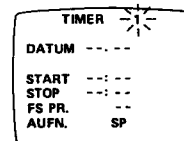
Checking the programmed data

- Checking and re-programming can be performed anytime, even when the SCHALTUHR button has already been engaged in the EIN position.
- While recording is actually taking place in the regular Timer mode, the STOP time can be changed. For this purpose, engage the Timer Set mode and move the cursor, only "STOP" time will flash. This means you can re-programme the stop time.
- While recording is actually taking place according to one preset programme, all other preset programmes can be checked or re-programmed.

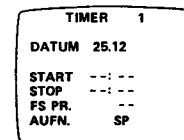
⑧ Programme the timer using the remote control's keys while referring to the display on the TV screen



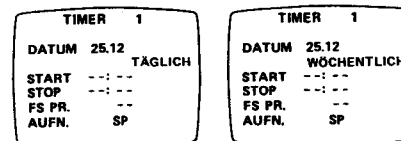
- 1 Turn on the recorder and the TV receiver.
 Set the TV receiver to your video channel.
 2 Set DIREKT/GESPEICHERT to DIREKT.
 3 Press AUFZ. NR.
 • The TV screen will change to the Timer Set mode display with programme number 1 blinking.



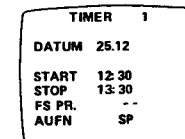
- To advance to programme numbers 2 to 8, press again.
- 4 Press CURSOR "→" to advance to the date setting stage.
 5 Enter the date using numeric keys.
 • Follow the information given for method A.



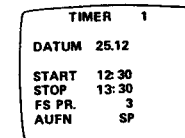
- To record a daily serial, press 8 (TÄGL.) and enter the date.
- To record a weekly serial, press 9 (WÖCH.) and enter the date.



- Both "daily" and "weekly" information can be entered or cancelled by the same keys also in the time setting stage.
- 6 Key in the start time, and then the stop time.
 • Follow the information given for method A.



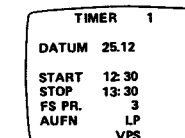
- 7 Enter the channel.
 • Follow the information given for method A.



- 8 Select the recording speed by pressing SP/LP.
 • The SP or LP entry can be made anytime while in the Timer Set mode.



- 9 For VPS recording, press VPS/KANAL.
 • VPS can be entered or cancelled anytime while in the Timer Set mode.



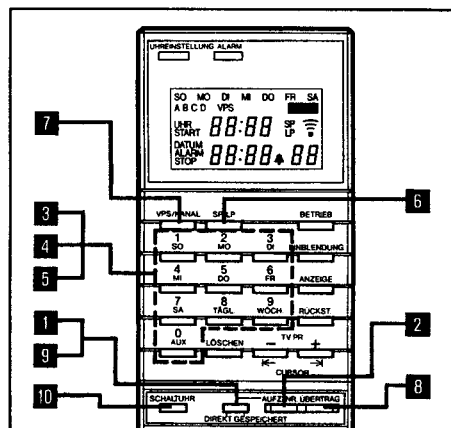
- 10 Press SCHALTUHR.
 • Check to see that the TIMER indicator on the recorder's FDP lights. (For error indications, see page 66.)

Notes:

- To cancel the on-screen display midway, press the EIN-BLENDUNG button.
- The on-screen display will also disappear when the AUFZ. NR. button is pressed with the programme number 8 having been called up on the screen.
- For usage of the cursor keys, refer to the previous page.

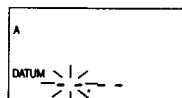
© Programme the timer using the remote control's keys and memory while referring to its own LCD panel and then transfer the data to the recorder

- The remote control incorporates 4 programme memories (A, B, C and D).
- The programmed data is held in memory even after it has been transferred to the recorder.

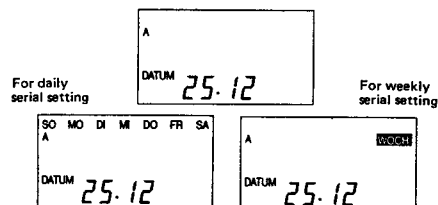


- Set DIREKT/GESPEICHERT to GESPEICHERT.
- Press AUFZ. NR.

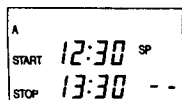
- The LCD will change to the Timer Set mode display with programme A ready for entry.
- To advance to programmes B to D, press again.



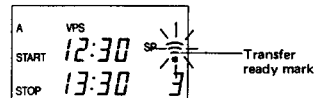
- Enter the date using numeric keys.
- Follow the information given for method A.
 - Setting for a daily or weekly serial is the same as for method A.



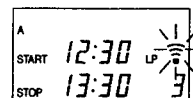
- Key in the start time, and then the stop time.
- Follow the information given for method A.



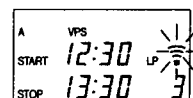
- Enter the channel.
- Follow the information given for method A.
 - After the channel has been entered, the transfer-ready mark will appear and blink.



- Select the recording speed by pressing SP/LP.
- The SP or LP entry can be made anytime while in the Timer Set mode.



- For VPS recording, press VPS/KANAL.
- VPS can be entered or cancelled anytime while in the Timer Set mode.



- Direct the remote control to the recorder's infrared receiving window and press ÜBERTRAG.

- The programmed data of one memory (in this case, A) will be loaded in one of the recorder's programme memories (from 1 to 8), the vacant memory of the smallest programme number.
- If all programme memories are full, the recorder's clock will blink for about 2 seconds when the ÜBERTRAG button is pressed and transmission will not take place.
- If the memory has some errors in setting or if transmission is interrupted by some obstacle between the remote control and the receiving window, the display will blink and transmission will not take place.

- Reset DIREKT/GESPEICHERT to DIREKT.

- Press SCHALTUHR.

- Check to see that the TIMER indicator on the recorder's FDP lights. (For error indications, see page 66.)

Notes:

- You can check whether the programmed data has been correctly transferred to the recorder's memory, by using the on-screen display mode without operating the recorder. For this purpose, turn on the TV receiver, press AUFZ. NR. with the DIREKT/GESPEICHERT switch set to DIREKT. Search for the programme memory in which the remote control's data has been stored by advancing the programme number with the AUFZ. NR. button.
- For usage of the cursor keys, refer to page 63.

Additional information for timer setting and operation

TIMER indicator (Error indication)

- When the SCHALTUHR button is pressed with a cassette loaded and the timer correctly programmed, the TIMER indicator on the display will light with the corresponding programme number(s) also lighting and the power is turned off.
- When you have preset several programmes at a time, confirm that all the preset programme numbers light together with the TIMER indicator when the SCHALTUHR button is pressed. The programme whose number does not light has not been correctly preset. Recheck the programmed data.
- Programming errors include cases where either "START" or "STOP" time has not been preset, or both these preset times are the same. A "no-channel-programmed" situation is not interpreted as an error, and recording will be made of the currently tuned channel.
- If all programmes have been wrongly preset, the TIMER indicator will flash for about 10 seconds when the SCHALTUHR button is pressed, and remain lit.
- If the SCHALTUHR button is pressed when a cassette is not loaded, the TIMER indicator will continue blinking.
- If a cassette with its safety tab removed has been loaded, it will be ejected automatically when the SCHALTUHR button is pressed. The TIMER indicator will continue blinking.
- As long as the SCHALTUHR button is engaged, unloading of a cassette is not possible.
- To re-load a cassette after the SCHALTUHR button has been engaged (the EIN indicator turns off), press it once again. Although the EIN indicator remains off, you can load a cassette (the EIN indicator lights). Then engage the SCHALTUHR button once again.

VPS operation

- If VPS codes are detected, "VPS" is illuminated. When a VPS code corresponding to the intended TV programme is detected, recording will start. When the VPS code changes to another, recording will stop.
- If no VPS code is detected during the VPS standby mode (for example, the tuned-in station does not transmit VPS codes), ordinary timer recording will be engaged; recording will start at the preset time and stop at the preset time.
- When an interruption code is detected during VPS recording, the recorder enters the VPS standby mode and restarts recording when the regular VPS code is restored.
- When the VPS code stops for some reason during VPS recording, recording will stop at the preset stop time.
- If a system status code which cancels VPS recording is detected during the VPS standby mode, ordinary timer recording will be engaged.
- During VPS recording, the number of the programme that is presently operation and the indication "VPS" will be blinking.
- After VPS recording, the power is switched off and the auto rewind mechanism does not function. If the end of the tape is reached during VPS recording, the cassette is automatically ejected and then the power is switched off.

Regular timer operation

- If the VPS mode is not engaged, tape loading starts 20 seconds before the preset START time and the recording start signal is triggered 2 seconds before the preset time so that recording starts exactly at the preset time.
- During timer recording, the number of the programme that is presently operating will be flashing.
- Operation at the end of recording is the same as with VPS operation.

RECORDING WITH A VIDEO CAMERA

- 1 Connect a video camera to the rear panel AUDIO/VIDEO socket and the PAUSE FERNBEDIENUNG terminal through an appropriate camera adapter.
• First make connections. Then power ON.
- 2 Switch ON.
• Adjust the TV receiver's channel to your video channel.
- 3 Load a cassette. Power will be turned on automatically.
- 4 Press .
• You can monitor the scenes being shot by the camera.
- 5 Set the Hi-Fi audio recording level.

- 6 Press AUFNAHME and PAUSE/STANDB. simultaneously.
• The recorder enters the Recording Standby mode.
• Starting or stopping of the tape is remote-controlled by the camera's start/stop switch; pressing the AUFNAHME and WIEDERG. buttons will directly start the tape running.
- 7 Operate the camera's start/stop switch.
• Now recording will start.
- 8 To end recording, press STOP.

Notes:

- If a microphone is connected to the HR-D755EG's MIKROFON jack, this microphone input is recorded mixed with the camera's built-in microphone.
- If feedback noise (whistling or howling) is heard from the TV receiver, reduce the volume or move the microphone, either external or built within the camera, farther away from the TV receiver.

- For camera operation refer to the instruction manual for the relevant camera.

AUDIO DUBBING

- 1 Switch ON.
• Adjust the TV receiver's channel to your video channel.
- 2 Load a pre-recorded cassette. Power will be switched on automatically.
- 3 Connect a microphone or an audio source to the MIKROFON jack or the AUDIO/VIDEO socket respectively.
• With both microphone and audio source connected, mixed sound is recorded.
- 4 Press .
• If you record sound only from the microphone, the source equipment connected to the AUDIO/VIDEO socket should be off.
- 5 Press VERTONUNG and WIEDERG. simultaneously. Audio dubbing will start.

Audio dubbing means recording a new soundtrack on a pre-recorded tape. In other words, the previously recorded sound is erased and replaced with a new soundtrack. **Audio dubbing is applicable only to the longitudinal audio track (normal audio).** Therefore, a dubbed narration can be heard together with the original hi-fi sound.

button at the point from which you wish to start audio dubbing. If necessary, adjust the point accurately by pressing the PAUSE/STANDB. button a few more times. Then press the VERTONUNG and WIEDERG. buttons simultaneously. This permits you to start audio dubbing exactly at the right point.

CAUTION:

Audio dubbing is not possible with an audio source connected to the rear panel AUDIO-EING. connectors.

Notes:

- It is recommended that you use a low-impedance microphone.
- If whistling or howling is heard during audio dubbing, reduce the TV volume or move the microphone farther away from the TV. Recording is being performed even if sound is not heard from the TV receiver. If you want to monitor the sound being recorded, connect headphones to the KOPFHÖRER jack.
- The pause function facilitates audio dubbing. First play back the pre-recorded tape and press the PAUSE/STANDB.

INSERT EDITING

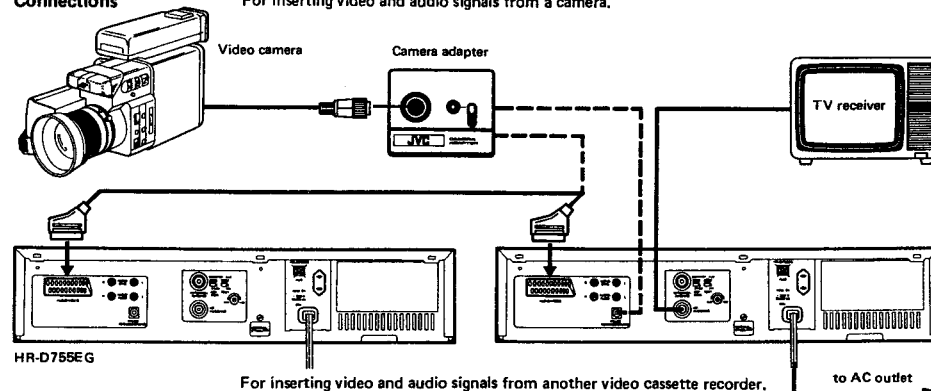
Insert editing means recording a new scene into a section of pre-recorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at edit-in and edit-out points. New video and audio signals to be inserted can come either from a video camera or another video cassette recorder, or even from the built-in tuner.

CAUTION

Since video and audio signals are recorded simultaneously, both hi-fi and normal audio soundtracks are replaced with new recordings simultaneously.

Connections

For inserting video and audio signals from a camera.



Procedure

- 1 Switch on the TV receiver.
• Adjust the TV receiver's channel to your video channel.
- 2 Load a pre-recorded cassette.
- 3 Select the source equipment.
• To insert from an external source, select the AUX mode by pressing .
- To insert from the built-in tuner, set AUFNAHME-WAHL to either TUNER or SIMUL depending on the desired source.
- 4 Set the Hi-Fi audio recording level. (See page 52.)
- 5 Play back the tape to determine the edit-out point (the end of the tape section to be replaced).
- 6 Press PAUSE/STANDB. at the edit-out point.
- 7 Press RÜCKSTELLUNG.
• The tape counter will be reset to "0000".
- 8 Press RÜCKL./BILDSUCHLAUF to determine the edit-in point (the beginning of the tape section to be replaced) and release it at a point slightly past the desired edit-in point.
- 9 Press PAUSE/STANDB. at the edit-in point.
- 10 Press INSERT and PAUSE/STANDB. simultaneously.
• This engages the Insert Standby mode in which the input signal can be monitored on the TV screen; the still picture changes into the input signal that you are going to record.
• The input sound signal can also be monitored.
- 11 Operate the source equipment properly.
• Play back on another recorder the tape programme to be inserted.
• Operate the camera so that it is in the locked running mode.
• Select the channel to be recorded.
• Select the channel and set the FM tuner.
- 12 Press WIEDERG. to start insert editing.
• Now video and audio signals will be recorded simultaneously.
• At the counter reading of "0000", recording will stop automatically.
• The tape will continue running in the Play mode.

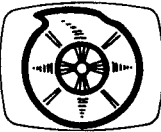
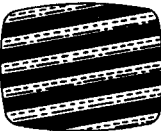
Notes:

- Do not use the STOP button to stop insert editing. If you press the STOP button, the tape stops and the Insert Edit mode is cancelled.
- If you wish to stop insert editing before the specified edit-out point is reached, press the RÜCKSTELLUNG button. Then the Play mode will be entered.
- The insert editing mechanism used in the HR-D755EG has been developed for home use applications. It may happen that pictures slightly distort or colours are incorrect at the edit points. This is not due to any defect of the unit.

- The recording mode (SP or LP) is automatically determined by the previous recording on which the new segment is inserted regardless of the setting of the SP/LP button.
- If the edit start point of the new scene lies in the SP mode and the edit end point of the same scene lies in the LP mode or vice versa, the inserted picture will distort at the switching point in the recording mode.
- If there is a non-recorded section on the tape, the Insert Edit mode will be cancelled automatically and the Play mode will be engaged.
- Insert editing is not possible with non-recorded cassettes or cassettes whose safety tab has been removed.

ADJUST YOUR TV RECEIVER WHEN . . .

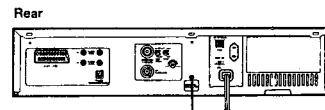
Still Playback may require adjusting your TV receiver. If your TV receiver shows the following symptoms during Still Playback, adjust the TV receiver first.

Symptom	Adjustment
Picture vibrates vertically. 	Turn the V-Hold knob slightly for stabilizing.*
The upper portion of the picture drifts horizontally. 	Turn the H-Hold knob slightly for stabilizing.**
Picture rolls. 	Turn the H-Hold knob slightly for stabilizing.**
Picture is flattened vertically. 	Inherent in your TV receiver.
Only a portion of the picture continues to flicker. 	Not adjustable. Inherent in your TV receiver.

HEAD CLEANING

- Picture playback may become blurred or interrupted while the TV programme received is clear. This does not mean that the recorded programme has been erased.
 - Dirt accumulated on the video heads after long periods of use causes such troubles. In this case, head cleaning requiring highly technical care is necessary.
- * For head cleaning, consult the nearest JVC dealer.

If the V-Hold and H-Hold knobs are not provided on your TV receiver, please consult your JVC dealer.



VERTIKAL-STABILITÄT control

* If an unsatisfactory result is obtained, adjust the VERTIKAL-STABILITÄT control located on the rear panel of the HR-D755EG so that a stable picture is obtained.

** If an unsatisfactory result is obtained, it is necessary to adjust the AFC circuit of the TV receiver.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first . . .

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	• Is the power cord disconnected? – Connect it.
Clock is functioning properly, but the recorder cannot be powered.	• Is the TIMER indicator lit on the FDP? – Press SCHALTUHR.
Tape does not run during recording.	• Is the PAUSE/STANDB. button engaged? – Press the WIEDERG. button.
Tape stops in the Rewind or Fast Forward mode.	• Is the SUCHLAUF switch set to ZÄHLWERK or CUE? – Set it to AUS.
Tape will not rewind or fast forward.	• Is the tape already fully rewound or fast forwarded? – Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	• Is a cassette loaded? • Is the safety tab on the cassette removed? – Reseal the slot with cellophane tape.
Camera recording is not possible.	• Are the camera and the camera adapter correctly connected? • Is the power switch of the camera adapter set to ON? • Does the channel display indicate "0"? – Press .
Simulcast recording is not possible.	• Is the AUFNAHME-WAHL switch set to TUNER? – Set it to SIMUL. • Is an audio source correctly connected to the AUDIO-EING. connectors? – Check connections.
Timer recording is not possible.	• Have you set the clock correctly and programmed the timer correctly? – Check once again. • Is the TIMER indicator lit on the FDP? – Press SCHALTUHR.
Audio dubbing is not possible.	• Is the safety tab on the cassette removed? – Reseal the slot with cellophane tape.

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	• Is the TV receiver's channel selector set to the correct video channel? – Set it to the RF converter channel. (See page 46.)
Noise appears during playback.	• Adjust the SPURLAGE controls.
Playback picture is blurred or interrupted while TV broadcasts are clear.	• Video heads may be dirty. – Head cleaning is necessary. Consult your nearest JVC dealer.
Playback sound is different from that intended to be recorded.	• Is a microphone plugged in? – Unplug it.

HI-FI AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on hi-fi audio track.	• Is the AUFNAHME-WAHL switch set to SIMUL? – Set it to TUNER.
Breaks are noticeable in hi-fi audio reproduction.	• Adjust with the SPURLAGE NORMAL control. (See page 52.) • Have you adjusted the recording level correctly? – Over-level recordings could be a cause. Adjust the level correctly next time. See page 52.
Soundtrack on the hi-fi audio track cannot be reproduced.	• Is the TONAUSSG. WAHL switch set to NORM? – Set it to Hi-Fi.
Audio level indicators do not function.	• Is the PEGELANZEIGE switch set to a position other than EIN? – Set it to EIN.

OTHERS

Symptoms	Check points
Whistling or howling is heard from TV.	• Move camera or microphone away from TV or reduce TV sound volume.
Some channels are skipped over when selecting a channel.	• Those channels are preset to be skipped over. If you need them, restore them.
Channel cannot be switched.	• Is recording in progress? – During recording, you cannot change the channel.

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

JVC

SERVICE MANUAL

Hi-Fi STEREO-VIDEO-KASSETTEN-REKORDER 

HR-D755EG EINSTELLANWEISUNG



HQ
High Quality

TECHNISCHE DATEN

Format : VHS PAL-Standard plus Hi-Fi Audio
Video- : Rotierendes Zweikopfsystem,
Aufnahmesystem : Schrägschichtabtastrung mit im Winkel
versetzten Köpfen, Dual-Azimut-
Kombinationsköpfe.
Hi-Fi Audio-Aufnahme- : Tiefschicht-Aufnahmesystem nach
system : dem Stereo Hi-Fi VHS Standard
Zahl der Audiokanäle : 2 Hi-Fi-Audiokanäle
1 herkömmlicher Audiokanal
Video-Signalsystem : PAL-Farb- und CCIR-Monochrom-
signale, 625 Linien
Bandbreite : 12,65 mm
Bandgeschwindigkeit
(SP) : 23,39 mm/Sek.
(LP) : 11,70 mm/Sek.
Maximal-Spieldauer
(SP) : 240 Min. mit E-240-Kassette
(LP) : 480 Min. mit E-240-Kassette
Temperaturbedingungen
Betrieb : 5°C bis 40°C
Lagerung : -20°C bis 60°C
Spannungsversorgung : 220 V~, 50/60 Hz
Leistungsaufnahme : 40 W
Video
Eingang : 0,5 bis 2,0 Vs-s, 75 Ohm, unsym-
metrisch
Ausgang : 1,0 Vs-s, 75 Ohm, unsymmetrisch
Störspannungsabstand: 43 dB
(Rohde u. Schwarz-Geräuschmesser)
bei BILD-Regler in Mittenposition
Horizontale Auf- : 250 Linien bei BILD-Regler in
lösung : Mittenposition
Audio
Eingang : MIKROFON: -67 dBs, hochohmig,
unsymmetrisch
AUDIO-EING.-Buchse (RCA x 2):
-20 dBs, 50 kOhm, unsym-
metrisch
AUDIO/VIDEO-Buchse (21pol.):
-3,8 dBs (CENELEC-Norm),
10 kOhm, unsymmetrisch

Ausgangspegel : AUDIO/VIDEO-Buchse (21pol.):
-3,8 dBs (CENELEC-Norm),
hochohmig
AUDIO-AUSG.-Buchse (RCA x 2):
-6 dBs, hochohmig
Ausgangsimpedanz : Weniger als 1 kOhm, unsymmetrisch
Störspannungsabstand: Mehr als 40 dB
Frequenzbereich : 70 Hz bis 10.000 Hz
Hi-Fi Audio
Frequenzgang : 20 Hz bis 20.000 Hz
Dynamikbereich : Mehr als 80 dB
Gleichlauf-
schwankungen : Weniger als 0,005 % WRMS
Fernseh-Tuner/HF-Teil
Kanalspeicher-
kapazität : 32 Kanäle
Antenneneingang : VHF 47 - 89 MHz
104 - 300 MHz
302 - 470 MHz
UHF 470 - 862 MHz
Antennenausgang : UHF-Kanäle 32 - 40 (Regelbar)
Digitaluhr/Schaltuhr
Uhranzeige : 24-Stunden-Fluoreszenzdisplay mit
Tages- und Datumanzeige
Referenzfrequenz : Quarzsteuerung
Startzeiteinstellung : Innerhalb von 1 Jahr
Programmierleistung : 8 Programme
Abmessungen : 435 mm(B) x 95 mm(H) x
376 mm(T)
Gewicht : 7,9 kg
Mitgeliefertes Zubehör : Antennenkabel,
Videokassette,
Infrarot-Fernbedienung,
R6-Batterie x 2,
Audiokabel (RCA-RCA)

Die technischen Angaben beziehen sich, sofern nicht anders angegeben,
auf die SP-Betriebsart.
Technische Änderungen vorbehalten.

INHALT

1. MECHANISCHE EINSTELLUNG	1-1
1.1 VOR DER ARBEIT	1-1
1.2 SPEZIALWERKZEUGE UND EINSTELLEHREN	1-1
1.3 DEMOTAGE	1-2
1.4 REGELMÄSSIGE WARTUNG	1-4
1.5 AUSTAUSCH DER HAUPTBAUGRUPPEN ..	1-5
1.5.1 Kopftrommel	1-5
1.5.2 Audio/Kontrollkopf	1-6
1.5.3 Bandteller	1-6
1.5.4 Kupplungsmechanismus	1-6
1.5.5 Bremsband	1-6
1.6 PRÜFUNGEN UND EINSTELLUNGEN	1-7
1.6.1 Prüfung des Mechanik-Zeitverhaltens	1-7
1.6.2 Prüfung der Bandzugführlhebelposition	1-7
1.6.3 Aufnahmedrehkraftprüfung	1-7
1.6.4 Rückspannungsprüfung	1-7
1.7 PRÜFUNGEN UND FEINJUSTIERUNGEN DES BANDTRANSPORTSYSTEMS	1-8
1.7.1 Führungsrollen	1-8
1.7.2 Abwickel-Führungsstift	1-8
1.7.3 Audio/Kontrollkopf-Neigung (Aufnahme- Führungsstift)	1-8
1.8 PRÜFUNGEN UND JUSTIERUNGEN ZUR AUSTAUSCHBARKEIT	1-8
1.8.1 FM-Hüllkurve	1-8
1.8.2 Einstellung des Audio/Kontrollkopfes	1-9
1.8.3 Kontrollkopf-Phaseneinstellung (X-Wert) ...	1-10
1.8.4 Schlußprüfungen	1-10
 2. ELEKTRISCHE EINSTELLUNGEN	
2.1 VORBEREITUNG	2-1
2.1.1 Erforderliche Prüfgeräte	2-1
2.1.2 In diesem Abschnitt gebrauchte Bezeichnungen	2-1
2.2 REGULATOR-SCHALTUNG	2-2
2.3 TIMER-SCHALTUNG	2-2
2.4 SERVO-SCHALTUNG	2-2
2.5 VIDEO-SCHALTUNG	2-3
2.6 AUDIO-SCHALTUNG	2-6
2.7 FMA-SCHALTUNG	2-7
2.8 TUNER/IF-SCHALTUNG	2-8

ABSCHNITT 1

MECHANISCHE EINSTELLUNG

1.1 VOR DER ARBEIT

Mechanische Einstellungen sind nach dem Austausch von mechanischen Teilen wegen Verschleiß oder Defekt erforderlich. Weil die mechanischen und elektrischen Systeme in Wechselbeziehung miteinander stehen, bildet richtige mechanische Einstellung die Vergleichsbasis für elektrische Einstellungen.

Um den Mechanismus mit entferntem Cassettenschacht zu betätigen, wird ein Blatt Isoliermaterial auf den rechten oberen Teil des Chassis gelegt und der Cassettenschacht darauf plziert. Das Gehäuse mit der V/M/S-Platine verbunden lassen. Eine Extra-Cassette (mit abgebrochener Löschschtzunge) einlegen und nach Durchführung des Einzugsvorgangs die gewünschte Betriebsart mit den Bedienungstasten einstellen.

1.2 SPEZIALWERKZEUGE UND EINSTELLEHREN

Außer den Werkzeugen und Instrumenten, die für elektrische Einstellungen erforderlich sind, werden die in Tabelle 1-2-1 gezeigten Werkzeuge und Einstellehren für die mechanischen Einstellungen dieses Modells benötigt.

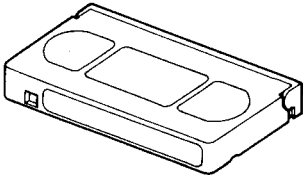
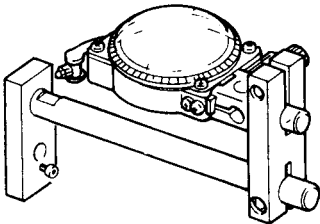
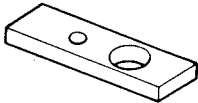
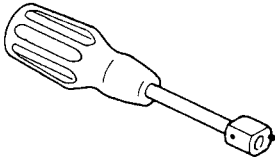
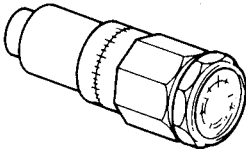
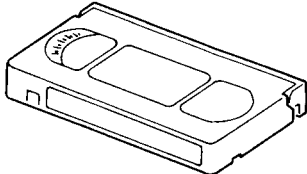
JVC-Abgleichband MH-2/MH-F2 	Mikrolehre PUJ49712-2 	Abstandsstück (für Mikrolehre) PUJ44905 
A/CTL Kopfpositionierungs-Werkzeug PUJ47351-2 	Drehkraftmessungs-Baugruppe PUJ48075-2 Drehkraft-Meßuhr: 600ATG Drehkraft-Meßkopf: PUJ48016-2 	Bandzug-Meßcassette PUJ48076 

Tabelle 1-2-1 Werkzeuge und Einstellehren

1.3 DEMONTAGE

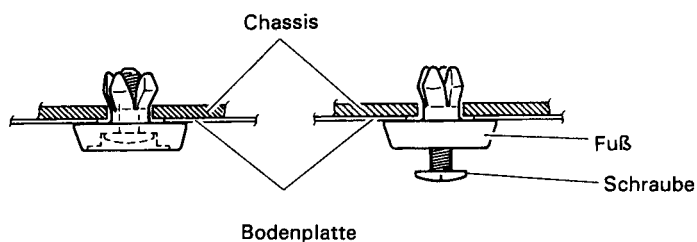
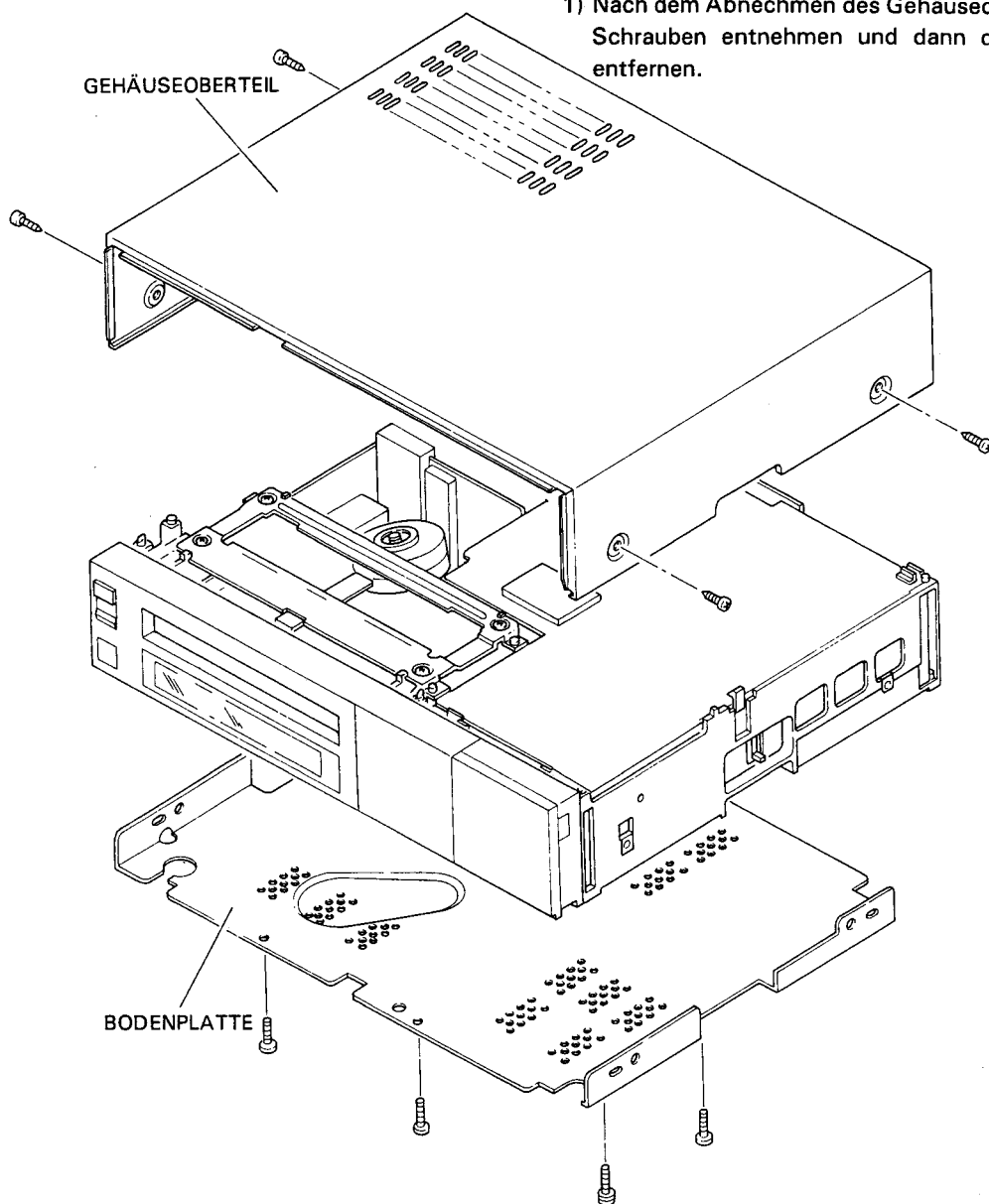
1. Gehäuseoberteil und Bodenplatte

— Gehäuseoberteil —

- 1) Vier Schrauben entnehmen, und dann den oberen Gehäuseteil in Pfeilrichtung abziehen.

— Bodenplatte —

- 1) Nach dem Abnehmen des Gehäuseoberteils die vier Schrauben entnehmen und dann die Bodenplatte entfernen.



Der Fuß ist am Chassis befestigt

Der Fuß kann abgenommen werden

Abb. 1-3-1 Gehäuseoberteil und Bodenplatte

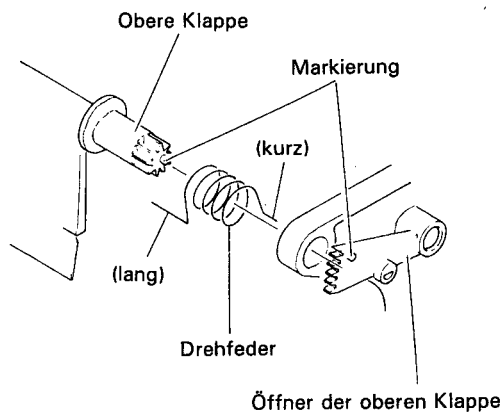
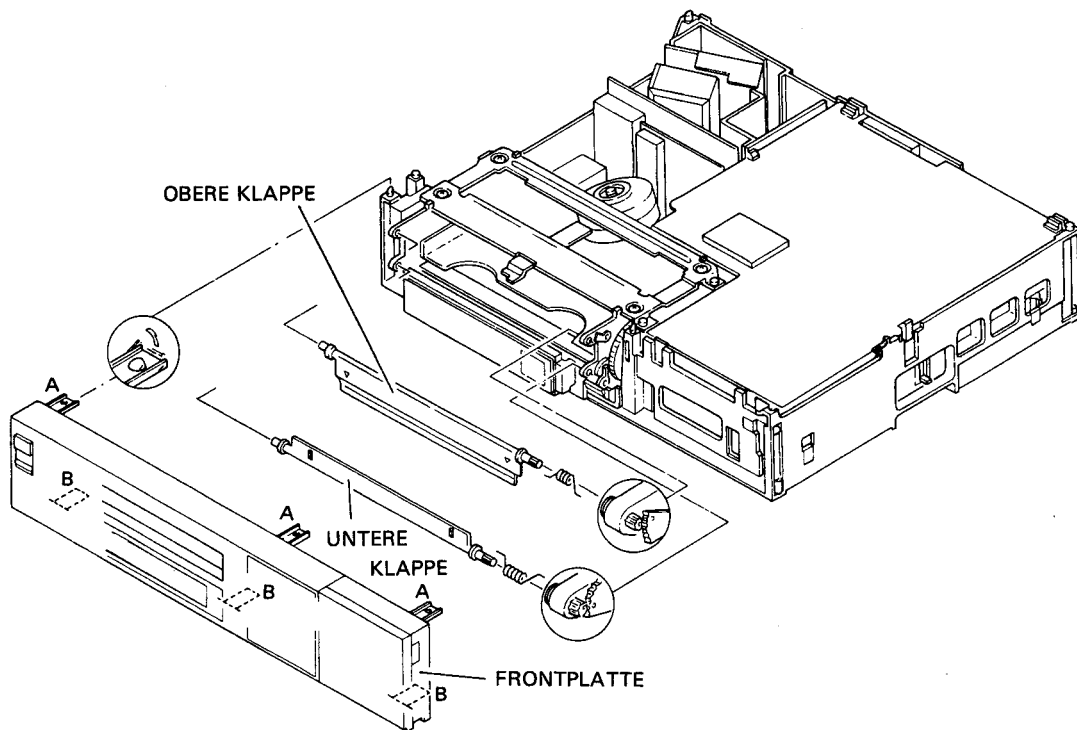
2. Frontplatte und Cassettenklappen

— Frontplatte —

- 1) Nach dem Entfernen der Oberabdeckung die drei Punkte A der Frontplatte nach oben biegen, um sie vom Chassis zu lösen, und dann die Frontplatte nach außen abziehen.
- 2) Die drei Punkte B von der Frontplatte lösen, um diese abzuziehen.

— Cassettenklappen —

- 1) Die untere Klappe ganz nach rechts bewegen, und dann das linke Ende der unteren Klappe vom Cassettenschacht trennen.
- 2) Die untere Klappe nach links ausziehen. Die Drehfeder vorsichtig behandeln.
- 3) Die obere Klappe auf gleiche Weise wie die untere Klappe entfernen.



Hinweise:

Beim Neueinbau der Klappen folgendermaßen vorgehen:

1. Die Markierung auf dem Zahnradteil der oberen Klappe beachten.
2. Den langen geraden Teil der Drehfeder in Richtung zur oberen Klappe einsetzen.
3. Die obere Klappe so einbauen, daß die in Schritt 1) beschriebene Markierung mit der Markierung auf dem Öffner der oberen Klappe des Cassettenschachts angeglichen ist.
4. Die untere Klappe auf gleiche Weise wie die obere Klappe einbauen.

Abb. 1-3-2 Frontplatte/Cassettenklappen

1.4 REGELMÄSSIGE WARTUNG

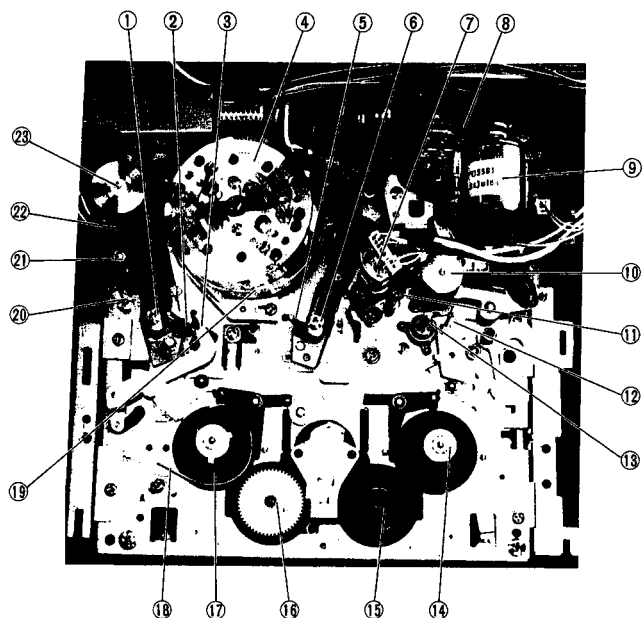


Abb. 1-4-1 Von oben gesehen

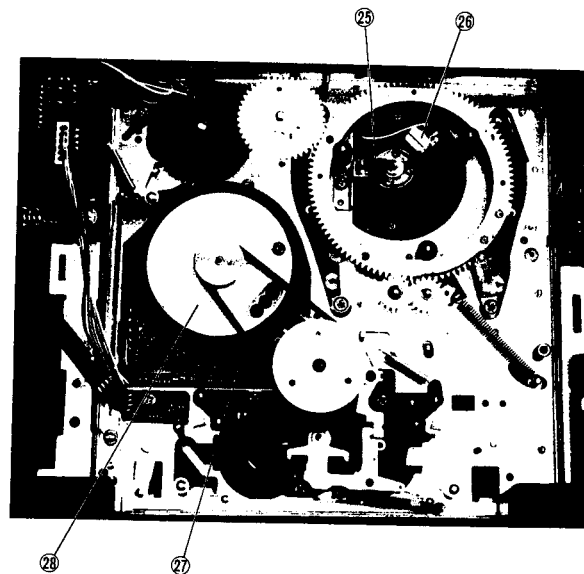


Abb. 1-4-2 Von unten gesehen

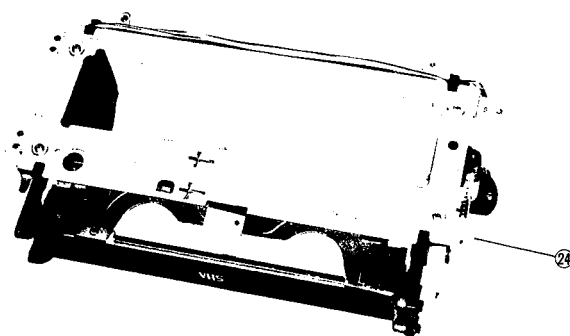


Abb. 1-4-3 Cassettenschacht

- | | | |
|------------------------------|-----------------------------|--------------------------|
| 1. Abwickel-Führungsrolle | 11. Aufwickel-Führungsstift | 21. Abwickel-Führungspol |
| 2. Abwickel-Kipprolle | 12. Führungsarm | 22. Vollöschkopf |
| 3. Bandzugführlhebel | 13. Capstanwelle | 23. Impedanzrolle |
| 4. Kopftrommel | 14. Aufwickel-Bandteller | 24. Cassettenmotor |
| 5. Aufwickel-Kippstift | 15. Aufwickel-Kupplung | 25. Bürste |
| 6. Aufwickel-Führungsrolle | 16. Abwickel-Kupplung | 26. Aufwickelkopf |
| 7. Audio/Kontrollkopf (A/C) | 17. Abwickel-Bandteller | 27. Wickelriemen |
| 8. Motorsteuerriemen | 18. Bremsband | 28. Capstanmotor |
| 9. Betriebsarten-Steuermotor | 19. Untere Trommel | |
| 10. Andruckrolle | 20. Abwickel-Führungsstift | |

1.5 AUSTAUSCH DER HAUPTBAUGRUPPEN

1.5.1 Kopftrommel

1. Die Anschlußdrähte der unteren Trommel von den Relaisstiften der Kopftrommel freilöten (schnell arbeiten, um Beschädigung der Drähte durch Überhitzung zu vermeiden).

RELAISSTIFT FARBE	KANAL	INNEN/AUSSEN
Braun	SP CH-1	Braun/Grün
Rot	SP CH-2	Rot/Farblos
Blau	LP CH-1	Blau/Schwarz
Orange	LP CH-2	Orange/Gelb
Grau	A-1	Lila/Gelbgrün
Grau	A-2	Rosa oder Hellgrau /Weiß

Tabelle 1-5-1 Verdrahtung der Kopftrommel

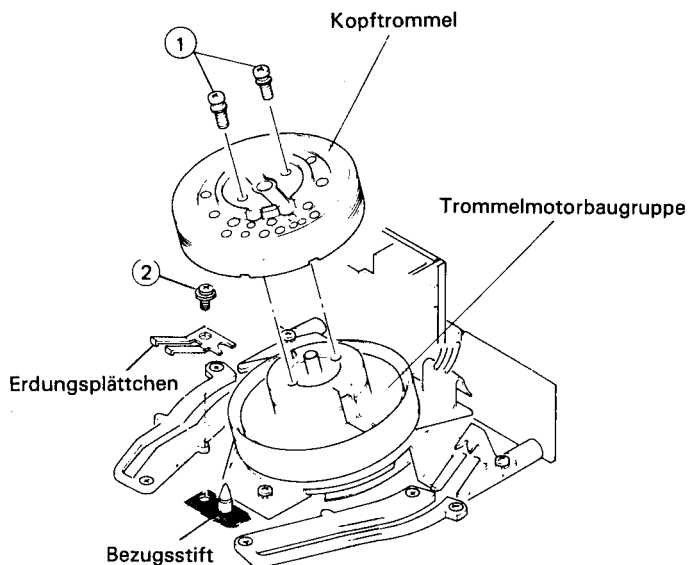


Abb. 1-5-1 Austausch der Kopftrommel

2. Die beiden Schrauben (1) herausnehmen und die Kopftrommel nach oben herausziehen.
3. Mit Alkohol die unteren Flächen der neuen Kopftrommel und die oberen Flächen der unteren Trommel reinigen. Bei Handhabung und Einbau der neuen Kopftrommel darauf achten, nicht direkt die Audio/Videoköpfe zu berühren oder die Trommel zu zerkratzen.
4. Beim erneuten Zusammenbau die oben beschriebenen Schritte in umgekehrter Reihenfolge durchführen. Beim Löten darauf achten, die richtigen Kanäle (siehe Tabelle 1.5.1) zu verwenden und nicht die Drähte zu überhitzen.
5. Kopftrommel zentrieren
 - 1) Das Gerät einschalten und in Abspiel-Betriebsart stellen, ohne daß der Cassettenschacht (siehe Abschnitt 1.5.1) eingebaut ist. Nach der Durchführung des Ladens das Gerät ausschalten.

- 2) Die Schraube (2) herausnehmen und das Erdungsplättchen wie in Abb. 1.5.1 gezeigt herausnehmen.
- 3) Die Mikrolehre auf die Bezugswelle setzen, wie in Abb. 1-5-2 gezeigt. Mit einem (metrischen) Sechskantschlüssel die Halteschraube anziehen.

Vorsicht: Die Mikrolehre ist eine Prüfeinrichtung zum Messen der Exzentrizität der Kopftrommel. Bei Verwendung dieser Einrichtung die folgenden Vorsichtsmaßnahmen beachten.

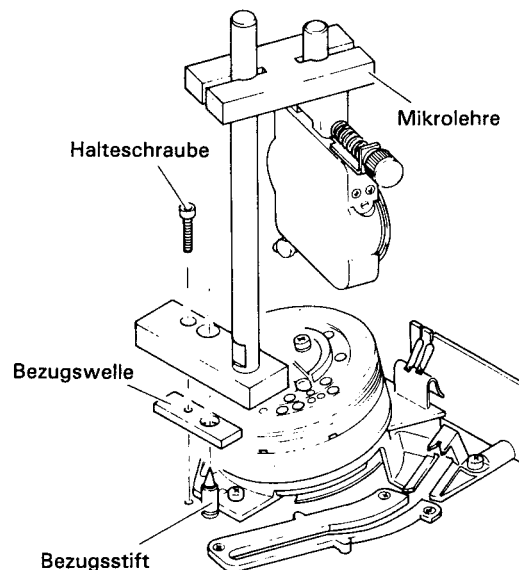


Abb. 1-5-2 Anbringen der Mikrolehre

- Da dies ein Präzisionsinstrument ist, es nicht fallenlassen oder stoßen.
 - Die Prüfsonde nicht mit Gewalt behandeln.
 - Der Außenrahmen der Skala kann um etwa 7 Skalenunterteilungen gedreht werden. Nicht mit Gewalt drehen (stärkere Kraft als 300 g-cm).
 - Darauf achten, daß die Prüfeinrichtung nicht die Videoköpfe berührt.
 - Vor dem Anbringen den Einstellknopf gegen den Uhrzeigersinn drehen (zu dem Punkt, wo die Federkraft nicht mehr gespürt wird).
 - Bei angebrachter Prüfeinrichtung keine Gewalt anwenden.
- 4) Die Position der Mikrolehre prüfen und nachstellen. Die richtige Position ist erreicht, wenn:
 - Der Prüfsonden-Berührungspunkt 2 oder 3 mm unter der oberen Fläche der Kopftrommel ist.
 - Die Bewegungsrichtung der Prüfsonde zur Mitte der Kopftrommel hin weist.
 - 5) Langsam den Feinregler im Uhrzeigersinn drehen, so daß die Prüfsonde Berührung mit der Kopftrommel hat. Auf der Skala zeigt die Drehanzeige auf Null.
 - 6) Darauf achten, keinen Längsdruck auf die Kopftrommel auszuüben und langsam die Kopftrommel drehen. Dabei die auf der Mikrolehre angezeigten Abweichungen ablesen.

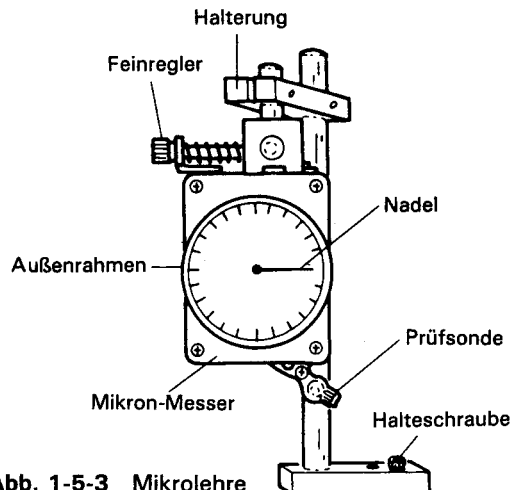


Abb. 1-5-3 Mikrolehre

- 7) Überprüfen, ob der Nadelausschlag innerhalb von 4 Mikron liegt.
- 8) Wenn der Ausschlag größer als 4 Mikron ist, nach dem Drehen des Feinreglers im Uhrzeigersinn die Prüfsonde von der Kopftrommel abnehmen, die beiden Schrauben ① lösen und vorsichtig die Stellung der Kopftrommel justieren. Dann die beiden Schrauben auf ausgeglichene Weise wieder festziehen. Die obigen Schritte 4) bis 6) wiederholen.
- 9) Nach dem Einsatz den Feinregler im Uhrzeigersinn drehen und die Mikrolehre abnehmen.
- 10) Nach dem Wiedereinbau des Erdungsplättchens Strom anlegen und auf Stopp-Betriebsart schalten.
6. Die Austauschbarkeit-Prüfung durchführen.

1.5.2 Audio/Kontrollkopf

1. Die Stecker CN1 und CN2 von der Platine A/CTL HEAD (Audio-kontrollkopf) abtrennen (siehe Abb. 1-5-4).
2. Die Schrauben ① entfernen und den Audio-Kontrollkopf mit der Kopfbasis entfernen.

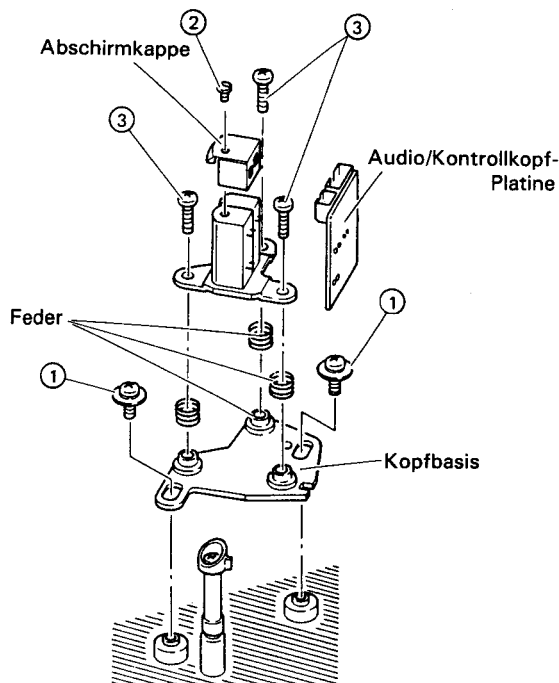


Abb. 1-5-4 Austausch des Audio/Kontrollkopfes

3. Die sechs aus den Köpfen kommenden Anschlüsse freilöten und die Audio/Kontrollkopf-Platine (A/CTL HEAD) entfernen.
 4. Die Schraube ② entfernen und die Abschirmkappe vom Audio/Kontrollkopf abnehmen.
 5. Die Schrauben ③ entfernen, um den Audio/Kontrollkopf von der Kopfbasis abzunehmen. Die Federn vorsichtig behandeln.
 6. Den Audio/Kontrollkopf austauschen und neu einbauen. Dazu die obigen Schritte in umgekehrter Reihenfolge durchführen.
- Vor dem Anbringen auf dem Haupt-Deck eine Grobeinstellung der Höhe des Audio-Kontrollkopfes vornehmen, wie in Abb. 1-5-5 gezeigt.

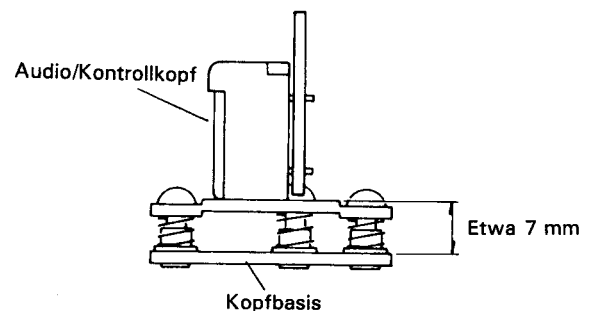


Abb. 1-5-5 Audio/Kontrollkopf-Höhe

7. Prüfungen und Nachstellungen von Bandtransport/Austauschbarkeit durchführen.

1.5.3 Bandteller

1. Nach dem Austausch der Bandteller eine Bremskraftprüfung durchführen (siehe 1.6.4).

1.5.4 Kupplungsmechanismus

1. Nach dem Austausch der Aufwickel/Abwickel-Kupplung und/oder des Kupplungsmechanismus eine Drehkraftprüfung durchführen (siehe 1.6.3).

1.5.5 Bremsband

1. Nach dem Austausch des Bremsbandes eine Fühlhebel-Positionsprüfung und Einstellung durchführen (siehe 1.6.2).
- Bremskraftprüfungen durchführen (siehe 1.6.4).

1.6 PRÜFUNGEN UND EINSTELLUNGEN

1.6.1 Prüfung des Mechanik-Zeitverhaltens

• Ladering/Ladezahnrad (2)

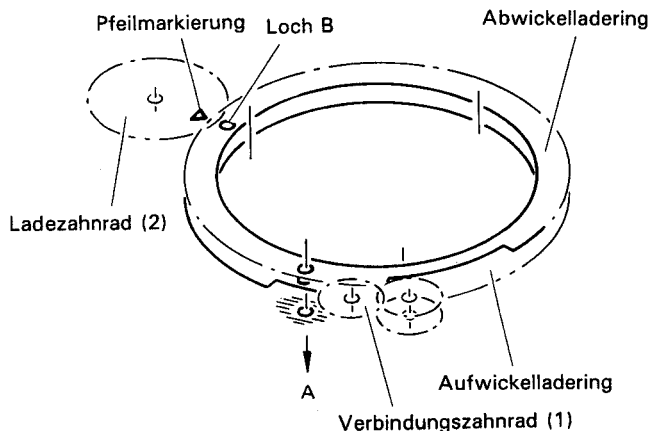


Abb. 1-6-1 Ladering/Ladezahnrad (2)

1. Sicherstellen, daß sich die beiden Löcher von Abwickel- und Aufwickelring durch das Loch des Hauptdecks überlappen (Pfeil A in der Abbildung). Wenn eine Abweichung festgestellt wird, nach dem Entfernen des Verbindungs zahnrades (1) die Laderinge so einstellen, daß die richtige Stellung erhalten wird. Die Löcher überlappen sich in Stopp-Betriebsart-Stellung (FF/REW).
2. Gleichzeitig sicherstellen, daß die Pfeilmarkierung des Ladezahnrads (2) dem Loch B des Zuführladeringes entspricht. Wenn eine Abweichung festgestellt wird, entfernen und das Ladezahnrad (2) erneut einbauen, um die richtige Stellung zu erhalten.

• Nocken Zahnrad (Antriebs Zahnradhalter) und Ladezahnrad (1)

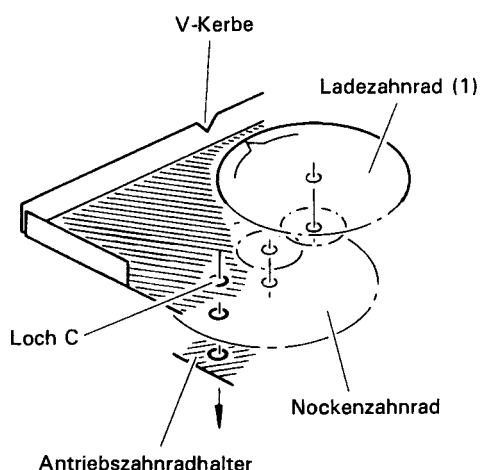


Abb. 1-6-2 Nocken Zahnrad/Ladezahnrad (1)

1. Wenn die beiden Löcher des Nocken zahnrades und der Antriebs Zahnradhalter sich durch das Loch C des Hauptdecks (Stellung FF/REW-Betriebsart) überlappen, sicherstellen, daß die Pfeilanzeige auf dem Ladezahnrad (1) mit der V-

Kerbe auf dem Hauptdeck angeglichen ist. Wenn eine Abweichung festgestellt wird, entfernen und das Ladezahnrad (1) neu einbauen, um die richtige Stellung zu erhalten.

1.6.2 Prüfung der Bandzugführlhebelposition

1. Ohne eingelegtes Band die Abspiel-Betriebsart einstellen.
2. Sicherstellen, daß die Mitte des Bandzugführlhebels auf der linken Seite des Zuführ-Führungsstiftes liegt, wie in Abb. 1-6-3 gezeigt.
3. Wenn erforderlich, die Schraube (1) lösen und den Spannbänderhalter nachstellen, um die richtige Bandzugführlhebelposition zu erhalten.

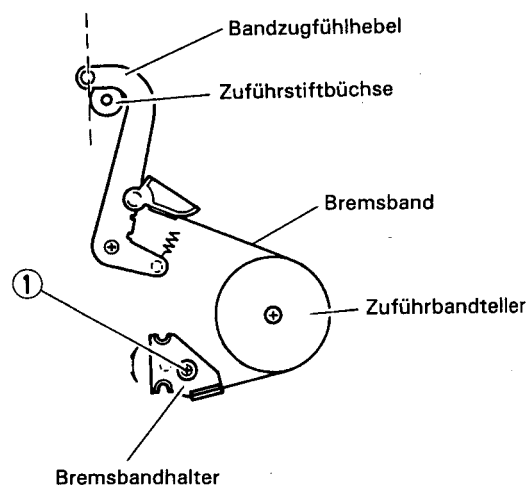


Abb. 1-6-3 Bandzugführlhebelposition

1.6.3 Aufnahmedrehkraftprüfung

1. Auf Abspiel-Betriebsart (SP) stellen, ohne daß ein Band eingelegt ist.
2. Den Drehkraftmesser auf den Aufwickel-Bandteller setzen.
3. Den Griff des Drehkraftmessers so lösen, daß die Anzeigenadel und Skala sich mit gleicher Geschwindigkeit drehen, und dann die Anzeige ablesen.
4. Der Richtwert beträgt zwischen 60 und 100 g-cm.

1.6.4 Rückspannungsprüfung

1. Zuerst die richtige Stellung des Bandzugführlhebels überprüfen.
2. Die Bandzug-Meßcassette verwenden und die Abspiel-Betriebsart (SP) einstellen.
3. Sicherstellen, daß der Anzeigewert zwischen 10 und 35 g-cm beträgt. Wenn nicht der richtige Wert angezeigt wird, die Bandzugführlhebelposition überprüfen und wenn nötig das Bremsband austauschen. Wenn erforderlich auch den Abwickel-Bandteller austauschen.

1.7 PRÜFUNGEN UND FEINJUSTIERUNGEN DES BANDTRANSPORTSYSTEMS

- Das Bandtransportsystem ist ab Werk genau abgestimmt worden, und normalerweise sind keine Nachstellungen erforderlich. Die folgenden Überprüfungen sind nur erforderlich, wenn schwere Schäden vorliegen oder wenn Teile, die das Bandtransportsystem betreffen, ausgetauscht werden.

1.7.1 Führungsrollen

Die Höheneinstellung der Führungsrollen ist erforderlich, um eine FM-Wellenform-Linearität am Trommeleingang und Ausgang bei Austauschbarkeit-Einstellungen zu erzielen. Zur Höheneinstellung der Führungsrollen die Stellschraube (1,25 mm Sechskant) lösen und die Führungsrolle mit einem Schraubenzieher drehen.

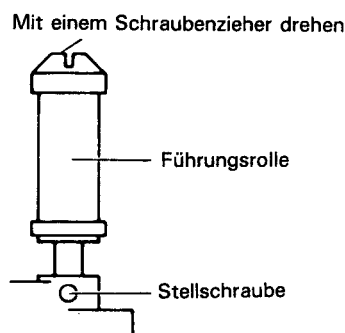


Abb. 1-7-1 Führungsrolle

Eine Extra-Cassette (nicht das Abgleichband) verwenden und bei laufendem Band eine Sichtprüfung durchführen, ob der Bandtransport am Trommeleingang und entlang des Trommel-Führungskanals glatt verläuft. Wenn erforderlich, die Höhe der Abwickel-Führungsrolle nachstellen.

Den Bandtransport auf der Trommel-Abwickelseite überprüfen und wenn nötig die Höhe der Aufwickel-Führungsrolle justieren.

1.7.2 Abwickel-Führungsstift

Dieser Führungsstift dient zur Verbesserung der Bandtransport-Stabilität zwischen Cassettenausgang und Trommeleingang durch Gleichhaltung der erforderlichen Höhe.

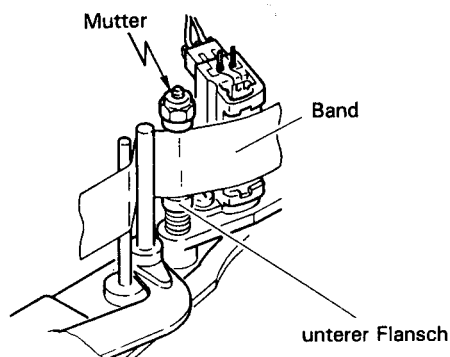


Abb. 1-7-2 Abwickel-Führungsstift

Nach der Einstellung der Abwickel-Führungsrolle wird dieser durch Drehen der oberen Mutter (5,5 mm Muttern-dreher) eingestellt, um glatten Bandtransport entlang des unteren Flansches des Führungsstiftes zu erzielen.

1.7.3 Audio/Kontrollkopf-Neigung (Aufnahme-Führungsstift)

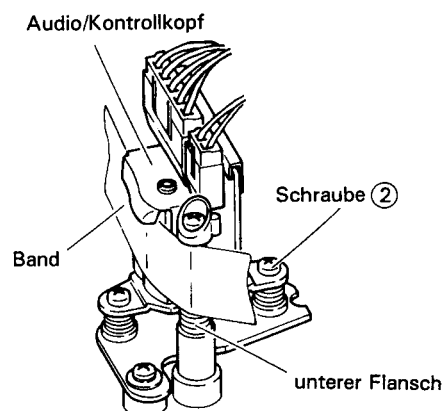


Abb. 1-7-3 Neigung des Audio/Kontrollkopfes

Dies ist eine unerläßliche Einstellung zur Austauschbarkeit. Nach der Einstellung der Aufwickel-Führungsrolle den Bandtransport am unteren Flansch des Aufwickel-Führungsstiftes beobachten. Mit einem Kreuzschlitz-Schraubenzieher die Schraube (2) gegen den Uhrzeigersinn drehen, bis der Punkt erreicht ist, wo Knicke im Band am unteren Flansch zu erscheinen beginnen. Dann die Schraube sehr langsam im Uhrzeigersinn so lange drehen, bis keine Knicke mehr erscheinen.

Azimet und Höhe des Audio/Kontrollkopfes werden bei den Austauschbarkeit-Einstellungen justiert.

1.8 PRÜFUNGEN UND JUSTIERUNGEN ZUR AUSTAUSCHBARKEIT

Vor der Verwendung des teuren Abgleichbandes ein Normalband verwenden und sicherstellen, daß der Bandtransport richtig funktioniert.

1.8.1 FM-Hüllkurve

Die Prüfungen und Einstellungen der FM-Füllkurve werden mit dem Grautreppensignal des Abgleichbandes **[MH-2]** durchgeführt. Ein Oszilloskop an den Testpunkt des FM-Ausgangs des Video-Wiedergabeschaltkreises anlegen und das Oszilloskop extern mit dem Signal vom Flipflop-Testpunkt (FF) des Video-Schaltkreises triggern.

1. Das Abgleichband **[MH-2]** abspielen und mit TRACKING maximalen FM-Ausgang einstellen. Das Maximum wird hier (a) genannt, der Minimalpunkt in der Mitte (b), das Minimum am Trommeleingang (c) und das Minimum am Trommelausgang (d). Dann prüfen, ob die folgende Beziehung besteht:

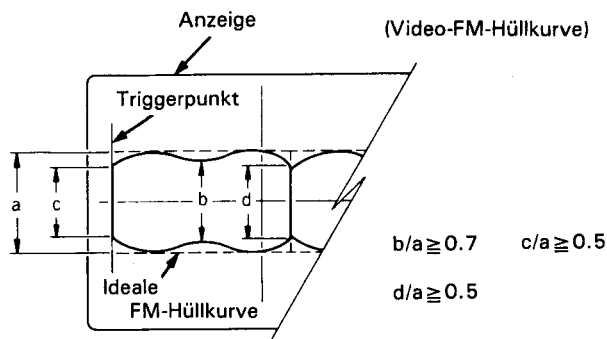


Abb. 1-8-1 FM-Hüllkurve

2. Die Einstellung ist dann erforderlich, wenn die Hüllkurve nicht den obigen Spezifikationen entspricht und auch dann, wenn die Gesamtabweichung der FM-Hüllkurve nicht linear ist. Im letzteren Fall würde partielles Pegelabfall auftreten, wobei auch nur eine leichte TRACKING-Abweichung zu Störungen im Bild führt.
3. Den Tracking-Regler drehen, um die FM-Hüllkurve von Maximum zu Minimum umzustellen, und dann umgekehrt von Minimum zu Maximum. Den Wellenteil, der dem Trommeleingang entspricht, beobachten und sicherstellen, daß die Veränderung parallel ist. Wenn die Welle ein Zickzackmuster darstellt, muß die Höhe der Abwickelrolle nachgestellt werden.

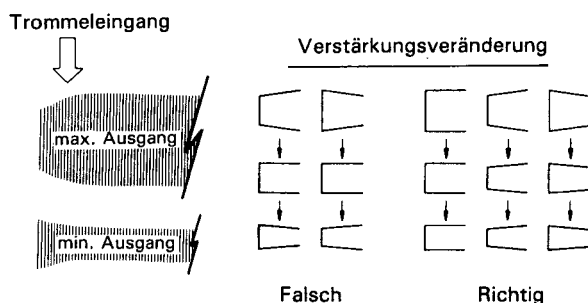


Abb. 1-8-2 Eingangs-FM-Hüllkurve

Mit andren Worten, das Band folgt nicht richtig der Trommelführung an der Eingangsseite. Die Abwickelrollenhöhe so einstellen, daß die Hüllkurve so parallel wie möglich erscheint.

4. Entsprechend den Wellenteil, der dem Trommelausgang entspricht, beobachten und sicherstellen, daß die Veränderung parallel ist. Wenn erforderlich, die Höhe der Aufwickelrolle nachstellen.

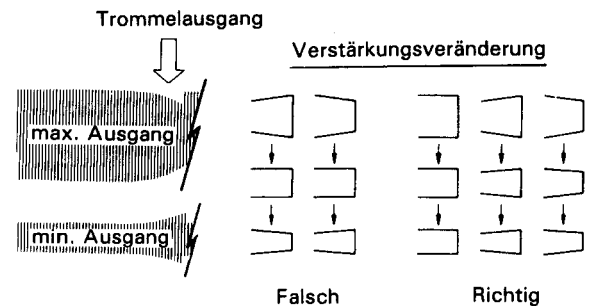


Abb. 1-8-3 Ausgangs-FM-Hüllkurve

5. Als nächstes die gesamte FM-Hüllkurve beobachten. Die Gesamtabweichung soll so parallel und linear wie möglich sein, und entsprechend beide Führungsrollen sorgfältig einstellen.
6. Nach der Einstellung der Führungsrollen im Hinblick auf Bandknicke oder Falten an den Abwickel- oder Aufwickelstiften überprüfen. Wenn diese am Abwickelstift gefunden werden, die Höhe des Stiftes im Hinblick auf Bandtransport am unteren Flansch des Stiftes nachstellen. Diese Einstellung vorsichtig vornehmen, da die Anstiegszeit der FM-Welle beeinflusst wird. Wenn Knicke oder Falten am Aufwickel-Führungsstift gefunden werden, die Neigung des Audio/Kontrollkopfes (einige neuere Modelle haben keine einstellbaren Führungsstifte) einstellen, im Hinblick auf Bandtransport am unteren Flansch des Stiftes. Anschließend die FM-Hüllkurve erneut überprüfen.

1.8.2 Einstellung des Audio/Kontrollkopfes

Falsche Einstellung des Audio/Kontrollkopfes reduziert den Wiedergabe-Audio-Ausgang, verschlechtert den Signal/Rauschabstand und stört in schweren Fällen die Servo-Stabilität aufgrund der Unfähigkeit, das Steuersignal zu erkennen.

Die Audiosignal-Hüllkurve durch Anschluß eines Oszilloskops an den Audioausgang-Testpunkt oder direkt an den Audioausgang beobachten. In einigen Fällen kann der Anschluß von Kopfhörern und das direkte Mithören des Tons ein nützlicher Test sein.

1. Den Grautreppe-Teil (Audio 6 kHz) des Abgleichbandes **[MH-2]** abspielen.
2. Den Azimutwert durch Drehen der Schraube ③ auf maximalen Audioausgang einstellen.

- Die Höhe durch Drehen der Schrauben ①, ② und ③ in jeweils kleinen und gleichmäßigen Schritten (etwa 45°) für maximale Audioausgang einstellen. Für "Normal"-Stereomodelle auch im Hinblick auf balancierten Ausgang vom linken und rechten Kanal einstellen.

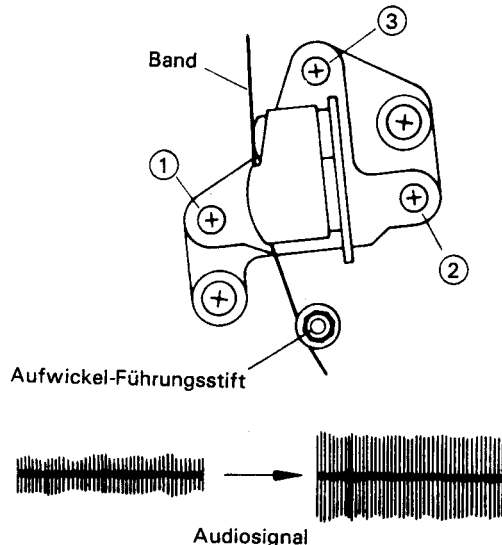


Abb. 1-8-4 Audio/Kontrollkopf-Einstellung

- Erneut die Hüllkurve überprüfen. Wenn sie akzeptabel ist, sorgfältig die Stellschrauben der Führungsrollen festziehen. Da dadurch die Hüllkurve wieder gestört werden kann, nach dem Anziehen der Schrauben erneut prüfen.

1.8.3 Kontrollkopf-Phaseneinstellung (X-Wert)

Falsche Einstellung des X-Wertes kann einen Zeitunterschied zwischen Bild und Tonwiedergabe erzeugen. Das ist leichter in LP-Betriebsart festzustellen, als in SP-Betriebsart. Die FM-Hüllkurve durch Anschluß eines Oszilloskops an den FM-Ausgangstestpunkt der Videoschaltung beobachten. Das Oszilloskop extern mit dem Flipflop-Signal triggern und den Abfallwert auf Minus (–) einstellen, um die Hüllkurve von CH1 zu beobachten. Den TRACKING-Regler in die Mitten-Einraststellung (AUTO) stellen.

- Den Grautreppe-Teil (6 kHz) des Abgleichbandes **MH-2** abspielen.
- Die Schrauben ④ und ⑤ des Audio/Kontrollkopfs leicht lösen. Den Audio/Kontrollkopfschlüssel auf die Schraube ④ stecken, wobei der Führungsstift in dem Loch neben dieser Schraube einrasten soll.
- Den Schlüssel gegen den Uhrzeigersinn drehen, um den Audio/Kontrollkopf ganz zur Capstan-Seite zu drehen.
- Die Hüllkurve von CH1 FM beobachten und langsam den Schlüssel im Uhrzeigersinn drehen. Beim ersten Ausgangs-Höhepunkt mit dem Drehen aufhören und sofort die Schraube ⑤ festziehen. Dann die Schraube ④ festziehen.

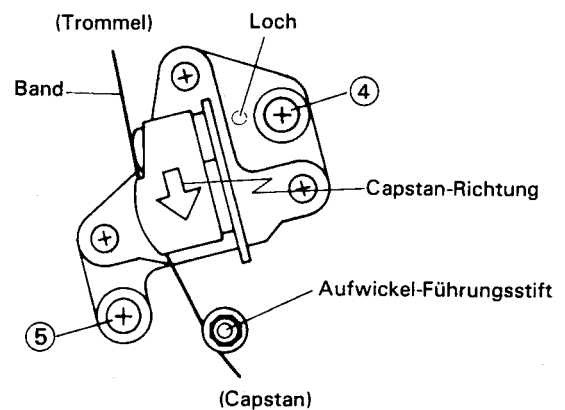


Abb. 1-8-5 Kontrollkopf-Phaseneinstellung

- Den TRACKING-Regler drehen und sicherstellen, daß die maximale FM-Hüllkurve in der Mitten-Einraststellung erzielt wird.

1.8.4 Schlußprüfungen

- Ein Videosignal anlegen, eine Aufnahme durchführen und anschließend wiedergeben. Sicherstellen, daß die Hüllkurve der Spezifikation entspricht. (Betriebsarten SP und LP)
- Für VHS HiFi-Modelle ein Oszilloskop an den Audio-FM-Ausgang der FM-Audio-Wiedergabeschaltung anschließen. Das FM-Audiosignal (nur Trägerwelle) auf dem Abgleichband **MH-F2** abspielen und sicherstellen, daß keine schweren Vertiefungen in der Hüllkurve zu sehen sind.
- Entsprechend den Angaben für elektrische Einstellungen Gesamt-Prüfungen und Einstellungen von Servo-, Video- und Audio-Schaltungen (einschließlich FM-Audio) durchführen.

ABSCHNITT 2 ELEKTRISCHE EINSTELLUNGEN

2.1 VORBEREITUNG

Elektrische Einstellungen sind erforderlich, nachdem Schaltkreisbauteile und bestimmte mechanische Teile ausgetauscht wurden.

Es ist wichtig, daß diese Einstellungen nur nach Beendigung aller Reparaturen und Austauschmaßnahmen durchgeführt werden. Diese Einstellungen außerdem nur vornehmen, wenn geeignete Ausrüstung zur Verfügung steht:

2.1.1 Erforderliche Prüfgeräte

- Richtig justierter Farb-Monitor
- Oszilloskop, Zweikanaloszilloskop mit verzögerter Zeitbasis
- Farbbalkengenerator
- Frequenzzähler
- Audiosignalgenerator
- Digital-Voltmeter
- Abgleichband für Aufnahme- und Wiedergabeprüfungen
- Abgleichbandes (geeigneter Typ für dieses Gerät)

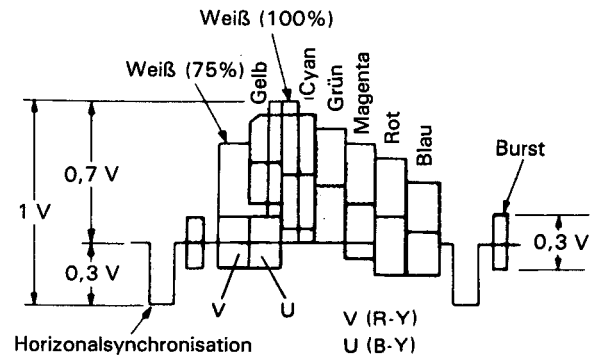


Abb. 2-1-1 Farbbalkensignal

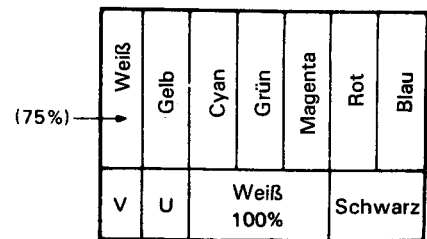


Abb. 2-1-2 Bildschirmaufteilung des Abgleichbandes

2.1.2 In diesem Abschnitt gebrauchte Bezeichnungen

Im folgenden werden die Prüfungs- und Justierungsschritte in Form von Tabellen dargestellt. Die Bedeutungen der Abkürzungen und Bezeichnungen, die in den Tabellen verwendet werden, sind im folgenden erläutert.

Nr.	Prüfungen und Justierungen sind in der empfohlenen Reihenfolge der Durchführung nummeriert.		
Einstellung	Die Bezeichnung des jeweiligen Prüfungs- und Justierungsschrittes.		
Meßpunkt	Stelle, an der das Meßinstrument angeschlossen wird.		
Einstellpunkt	Potentiometer, Trimmer-Kondensator usw., die eingestellt werden.		
Betriebsart Eing.-Signal	Eingangssignal und Betriebsart zur Zeit der Einstellung oder Prüfung.		
Farbbalken	Farbbalkensignal als Videoeingang.		
Grautreppe	Grautreppe-Signal als Videoeingang.		
1 kHz	Eine 1 kHz-Sinuswelle als Audio-Eingangssignal anlegen.		
MH-2 Farbbalken	Das Farbbalken-Segment des Abgleichbandes MH-2 abspielen.		
MH-2 Grautreppe	Das Grautreppe-Segment des Abgleichbandes MH-2 abspielen.		
MH-2 3 kHz	Das 3 kHz-Audiosignal-Segment des Abgleichbandes MH-2 abspielen.		
MH-2 1 kHz	Das 1 kHz-Audiosignal-Segment des Abgleichbandes MH-2 abspielen.		
	MH-F2 1 kHz Abweichung	Das mit 1 kHz modulierte Signal des Abgleichbandes MH-F2 abspielen.	
	STOP	Gerät eingeschaltet und in Stopp-Betriebsart	
	REC	Aufnahme-Betriebsart	
	PB	Abspiel-Betriebsart	
	REC → (andere Betriebsart)	Ein unbespieltes Band verwenden, bespielen, und dann in der angegebenen Betriebsart abspielen.	
	STILL	Standbild-Betriebsart	
	SEARCH	Suchlauf-Betriebsart (FWD und REV) Betriebsart	
	A DUB	Audio-Überspiel-Betriebsart.	
Einstellschritte	In dieser Spalte wird eine Beschreibung der Schritte, Anmerkungen, Einstellwerte, Hüllkurven usw. gegeben.		

2.2 REGULATOR-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der REGULATOR Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	9 V Gleichstrom Ausgangsspannung	TP1	R21	• REC	1. Das digitale Voltmeter an TP1 und an TP GND anschließen. 2. R21 auf 9,3 V einstellen.
2	5 V Gleichstrom Ausgangsspannung	TP2	R15	• REC	1. Das digitale Voltmeter an TP2 und an TP GND anschließen. 2. R15 auf 5,35 V einstellen.

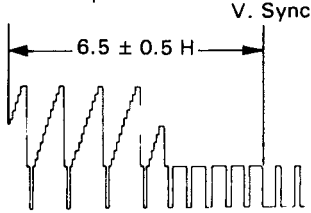
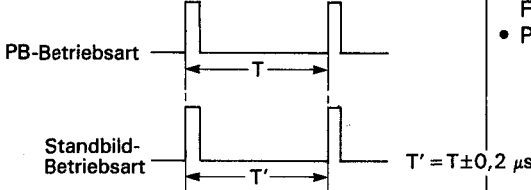
2.3 TIMER-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der T/M/S Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Timer-Takt	TP2	C102	• E-E	1. Den Frequenzzähler an TP2 (IC101-16) anschließen. 2. IC102-2 an GND kurzschließen, und dann zum Rückstellen kurz C7 kurzschließen. 3. C102 so einstellen, daß $2048,010 \pm 0,002$ Hz erhalten werden.
2	Einblend Takt Einstellung	TP1	R10	• E-E	1. Einen Frequenzzähler an TP1 und an GND anschließen. 2. TP7 und TP4 an GND anschließen. 3. R10 so einstellen, daß eine Frequenz von $6,30 \text{ MHz} \pm 0,05 \text{ MHz}$ erhalten wird.

2.4 SERVO-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der T/M/S Platte.

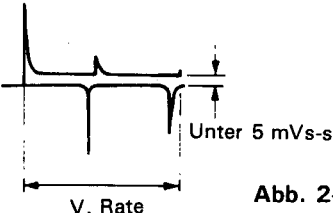
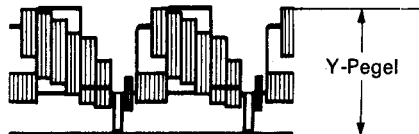
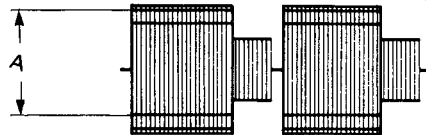
Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	PB Schaltpunkt	Ausgang oder TP10 VAF Platte	R149 VAF Platte	• PB • MH-2 Grautreppe • SP-Betriebsart • Negative Triggerflanke (–)	1. Ein Oszilloskop an TP10 (VIDEO OUT) der V/A/F-Platine anschließen und das Oszilloskop extern mit dem Signal von TP11 (DRUM FF) der Platine PRE/REC triggern (negative Triggerflanke). 2. Das Grautreppe-Segment des Abgleichbandes MH-2 abspielen und R149 der V/A/F-Platine so einstellen, daß der Schaltpunkt $6,5 \pm 0,5$ H von V Sync. ist.
	 Abb. 2-4-1				
2	V. Impulsposition	Monitor	R423	• REC und dann PB • Standbild • Farbbalken • SP-Betriebsart	1. Das Farbbalken-Signal in SP-Betriebsart aufnehmen, und dann in Standbild-Betriebsart abspielen. 2. Den Monitor beobachten und R423 so einstellen, daß vertikales Zittern minimiert werden.
3	H. Diskriminator	TP12 VAF Platte	R150 VAF Platte	• PB • MH-2 Farbbalken • PB → Standbild	1. Das Oszilloskop an TP12 der V/A/F-Platine anschließen und die Zeitbasis des Oszilloskops auf $10 \mu\text{s}/\text{div}$ einstellen. Das Oszilloskop extern (positive Triggerflanke) mit dem Signal von TP12 (H. sync.) der V/A/F-Platine triggern. 2. Den Farbbalkenteil des Abgleichbandes MH-2 abspielen und den H. sync Impuls von T, wie in Abb. 2-4-2 gezeigt, notieren. 3. Auf Standbild-Betriebsart stellen und R150 der V/A/F-Platine so einstellen, daß $T' = T + 0,2 \mu\text{s}$ ist, wie in Abb. 2-4-2 gezeigt.
	 Abb. 2-4-2				

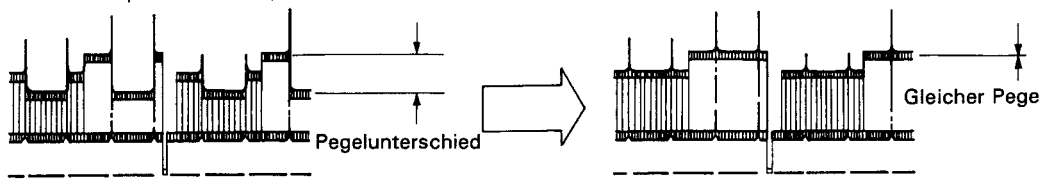
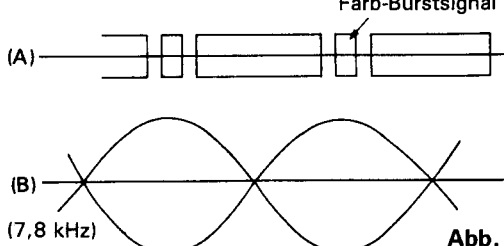
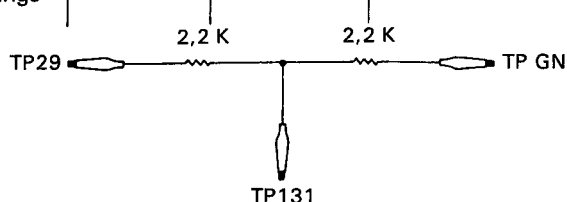
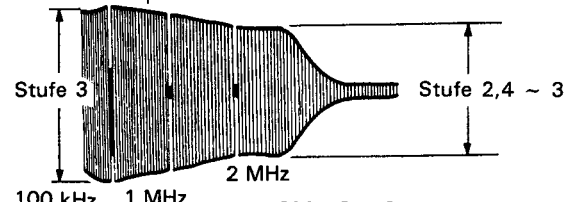
Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
4	Zeitlupen- Tracking	Monitor	R153 V/A/F Platte	• Z. lupe PB (FWD) • SP-Betriebsart	Hinweis: Die Taste "Z. LUPE/RAFFER" drücken, um Zeitlupe einzustellen. Die Fernsehbilder erscheinen mit 1/40, 1/20, 1/10, 1/5 der Normalgeschwindigkeit. 1. Den Tracking-Regler an der Frontplatte in Mitten-Einraststellung stellen. 2. Das Farbbalkensignal in SP-Betriebsart aufzeichnen und dann in Langsam-Betriebsart abspielen. 3. R153 so einstellen, daß die Störbalken im Monitorbild minimiert werden.
			R152 V/A/F Platte	• Z. lupe PB (FWD) • LP-Betriebsart	1. Die obigen Schritte für LP-Betriebsart wiederholen. R152 so einstellen, daß Störbalken im Monitor-Bildschirm minimiert werden.
			R151 V/A/F Platte	• Z. lupe PB (REW) • LP-Betriebsart	2. In REV Z. lupe-Betriebsart abspielen und R151 so einstellen, daß Rauschbalken im Monitor-Bildschirm minimiert werden.

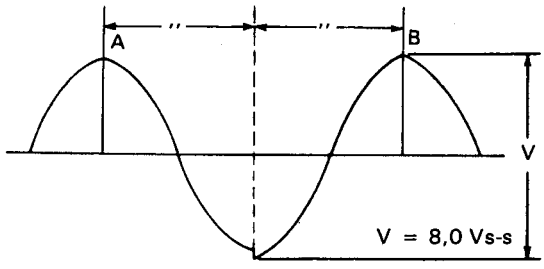
2.5 VIDEO-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der VIDEO Platte.

	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Nr. Einstellschritte
1	VXO	TP106 V/A/F Platte	R179 V/A/F Platte	• PB • MH-2 Farbbalken • SP	1. Einen Frequenzzähler an TP106 der V/A/F-Platine anschließen. 2. Das Farbbalkensignal des Abgleichbandes MH-2 abspielen und R179 der V/A/F-Platine so einstellen, daß 4,433619 MHz $\pm$ 50 Hz erhalten werden.
2	REC FM Pegel	TP4 PRE REC Platte	R50 PRE REC Platte	• REC • LP-Betriebsart Farbbalken	1. Ein Oszilloskop an TP4 der Platine PRE REC anschließen. R50 auf $1,3 \pm 0,5$ Vs-s zwischen den Mitten der in der Abbildung gezeigten Hüllkurventeil einstellen. $A = 1,3 \pm 0,05$ Vs-s Abb. 2-5-1

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
3	REC Farb- pegel und Balance einstellen	TP104	R40 PRE REC Platte	• PB MH-2 Farbbalken • SP-Betriebsart • REC und dann PB Farbbalken • SP-Betriebsart	1. Ein Oszilloskop an TP104 anschließen. Das Farbbalkensegment von MH-2 abspielen und den Farbsignalpegel beobachten. 2. Den Tracking-Regler an der Frontplatte auf maximalen Pegel der Farb-Hüllkurve einstellen und den höheren Farbpegel notieren. 3. Den Tracking-Regler an der Frontplatte in Mitten-Einraststellung stellen. 4. Das Farbbalkensignal aufzeichnen, und dann abspielen. Vor dem Aufnehmen R40 so einstellen, daß der Kanal mit dem höheren Pegel $100 \pm 5\%$ des notierten Pegels bei Wiedergabe wird. Jetzt bestätigen, daß der Kanalunterschied innerhalb von 3 dB liegt.
			R41 PRE REC Platte	• PB MH-2 Farbbalken • LP-Betriebsart • REC und dann PB Farbbalken • LP-Betriebsart	Hinweis: LP-Betriebsart nach SP-Betriebsart einstellen. 5. TP121 an TP29 kurzschließen und dann die obigen Schritte (1 bis 3) für LP-Betriebsart wiederholen. 6. Den Kurzschluß aufheben. Das Farbbalkensignal aufzeichnen, und dann abspielen. Vor dem Aufzeichnen R41 so einstellen, daß der höhere Kanal $80 \pm 5\%$ des notierten Pegels bei Wiedergabe wird. Jetzt bestätigen, daß der Kanalunterschied innerhalb von 3 dB liegt.
4	Y NR (NC BAL)	TP23	R45	• E-E Farbbalken • SP-Betriebsart	1. Die Hüllkurve von TP23 bei V. Rate beobachten. 2. R45 auf minimale DC Schritt-Abweichung (unter 5 mVs-s) einstellen.  Abb. 2-5-3
5	Y NR Verstärkung	TP21 TP22	R57	• E-E Farbbalken • SP-Betriebsart	1. Einen Kanal eines Zweikanal-Oszilloskops an TP21 und den anderen Kanal an TP22 anschließen. R57 so einstellen, daß der gleiche Y-Pegel in beiden Fällen erhalten wird, wie in Abb. 2-5-4 gezeigt.
		 Abb. 2-5-4			
6	1H Verzögerung Farbpegel	TP105	R168	• PB MH-2 Farbbalken • SP-Betriebsart	1. Ein Oszilloskop an TP105 anschließen und den bestätigen, daß Pegelstufenunterschied vor und nach dem Rauschbalken vorhanden ist. Signalpegel beobachten. TP129 und TP130 an Erde kurzschließen und erneut den Pegel von TP105 prüfen. 2. R168 (DELAYED COLOR LEVEL) einstellen, um den gleichen Pegel in beiden Fällen wie in Abb. 2-5-5 gezeigt zu erhalten.
		 Abb. 2-5-5			

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
7	0,5 H Verzögerungs- Videopegel	VIDEO OUT oder TP10	R23	- REC und dann PB Farbbalken - LP-Betriebsart - Suchlauf	- Ein Oszilloskop an VIDEO OUT oder TP10 anschließen und die Zeitbasis auf 2 ms/div einstellen. Das Oszilloskop extern (negative Triggerflanke) von TP11 (DRUM FF) triggern. - Beim Suchlauf R23 so einstellen, daß der Y-Pegelunterschied an VIDEO OUT, wie in Abb. 2-5-6 gezeigt, gleichmäßig ist.
 FALSCH Abb. 2-5-6 RICHTIG					
8	Fehler APC-Phase	TP105 TP128	L33	PB SP Farbbalken	Zweikanal-Oszilloskop an TP105 und TP128 anschließen. Den Kern von L33 einstellen, so daß die Beziehung zwischen Burst-Phase (A) und 7,8 kHz Hüllkurven-Phase (B) erhalten wird, wie in Abb. 2-5-7 gezeigt.
 (A) (B) (7,8 kHz) Abb. 2-5-7					
9	0,5 H Verzögerungs- sprung	TP132	R160	E-E kein Signal	- Die in der Abbildung gezeigte Schaltung an TP29, TP GND und TP131 anschließen. Den Eingangswähler auf LINE stellen (kein Signaleingang). - R160 so einstellen, daß $30,0 \pm 0,2$ kHz an TP132 erhalten werden.
 TP29 2,2 K 2,2 K TP GND TP131 1/2 Vcc Einstellschaltung Abb. 2-5-8					
10	SP PB Frequenzgang und CH-Balance	Video- Ausgang oder TP10	R2 PRE REC Platte	- REC und dann PB - Video-Wobbler - SP-Betriebsart	- Videoausgang mit 75 Ohm abschließen und den Schärfenregler an der Frontplatte in Mittenstellung stellen. Einen Video-Wobbelgenerator an VIDEO IN anschließen. - Ein Video-Wobbelsignal in SP-Betriebsart aufnehmen und wiedergeben. Den Regler des Oszilloskops in 100 kHz-Stellung an Stufe 3 (0 dB) an der Oszilloskopskala einstellen. - R2 so einstellen, daß der 2 MHz Teil von Kanal 1 2,4 bis 3,0 (-1 ± 1 dB) der Oszilloskop-Abstufung ist, wie in Abb. 2-5-9 gezeigt. - Bestätigen, daß der Kanalunterschied innerhalb von 2 dB liegt.
 Stufe 3 Stufe 2,4 ~ 3 100 kHz 1 MHz 2 MHz Abb. 2-5-9					
				- REC und dann PB - Fernseh- programm - SP-Betriebsart	Alternativmethode - Den Schärfenregler an der Frontplatte in Mitten-Einraststellung stellen. - Eine Farbfernsehsendung mit Bildern menschlicher Gesichter in SP-Betriebsart aufzeichnen und abspielen. R2 so einstellen, daß klare Gesichtsmerkmale auf dem Monitor sichtbar werden. Hinweis: R2 fast in Mittenstellung.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
11	LP PB Frequenzgang und CH Balance		R1 PRE REC Platte	• LP-Betriebsart	1. Die obigen Schritte für LP-Betriebsart wiederholen. R1 auf -5 ± 1 dB (1,5 ~ 1,7 Stufe) einstellen. Alternativmethode 1. Die obigen Schritte für LP-Betriebsart wiederholen. R1 auf klare Gesichtsmerkmale auf dem Monitor einstellen. Hinweis: R1 fast in Mittenstellung.
12	SECAM AMP	TP110	R191	• E-E SECAM Farbbalken	1. R191 so einstellen, daß eine 8 Vs-s Hüllkurve bei TP110 gegeben ist. (Siehe Abb. 2-5-10)
13	SECAM DET	TP110	L34	• E-E SECAM Farbbalken	1. Den Kern von L34 so einstellen, daß die Hüllkurve von TP110 aussieht, wie in Abb. 2-5-10 gezeigt. 2. PAL und SECAM-Signale in LP-Betriebsart aufnehmen und abspielen. Das Bild auf einem Monitor beobachten und normalen Betrieb und Vorhandensein von Farbe in beiden Fällen bestätigen.
					 Diesen Punkt in Mittenstellung zwischen den Punkten "A" und "B" stellen. Abb. 2-5-10

2.6 AUDIO-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der V/A/F Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	Vormagneti- sierung	TP402 TP403	R434	• REC • SP-Betriebsart • SOURCE wahl: AUX • AUDIO OUT: NORM	1. Ein Millivoltmeter zwischen TP402 und TP403 (GND) schalten. Auf REC-Betriebsart ohne Signal stellen (VIDEO und AUDIO). R434 auf $2,6 \pm 0,2$ mVrms einstellen.
2	PB-Pegel	AUDIO OUT	R423	• SP- oder LP-Betriebsart • REC und dann PB 1 kHz, - 8 dB • SOURCE Wahl: AUX • AUDIO OUT: NORM	1. Ein Audiosignal (-8 dB/1 kHz) an A/V-Anschluß an beide Kanäle von AUDIO IN anlegen und ein Audiosignal zusammen mit einem Videosignal abspielen. 2. R423 so einstellen, da der Audio-Ausgangspegel bei Wiedergabe -6 ± 2 dB wird.

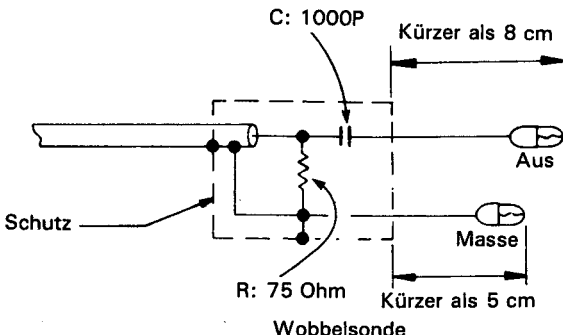
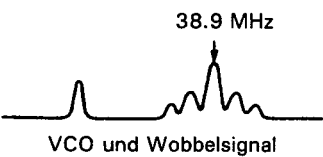
2.7 FMA-SCHALTUNG

Hinweis: 1. Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der V/A/F Platte.
2. Den Audio-Begrenzer auf ON schalten, um $-6 \pm 0,5$ dB bei AUDIO OUT zu erhalten.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
1	E-E Pegel	AUDIO OUT	R247 (CH1/L)	• SOURCE Wahl: AUX • Begrenzer- schalter auf ON stellen • AUDIO OUT auf HiFi • E-E	1. Den Schalter SOURCE SELECT auf AUX stellen. Ein Audiosignal mit 1 kHz, -8 dB über A/V CONN (beide Kanäle) angelen.
			R250 (CH2/R)		2. Den Audiobegrenzer auf ON stellen. In STOP-Betriebsart (E-E) R247 so einstellen, daß $-6 \pm 0,5$ dB bei AUDIO OUT erhalten wird. 3. Auf gleiche Weise R250 für Kanal R (CH2) einstellen.
2	REC FM pegel	TP201	R228	• SOURCE Wahl: AUX • Ohne Audiosignal • SP REC Betriebsart • AUDIO OUT: HiFi	Hinweis: Die Pegeleinstellung FMA REC FM nach der Einstellung von VIDEO REC FM (Abschnitt 2,5, Nr. 2) durchführen. 1. Ohne angelegtes Eingangssignal den Schalter SOURCE SELECT auf AUX stellen. 2. In Betriebsart SP REC R228 auf $2,2 \pm 0,1$ Vs-s Hüllkurve bei TP201 einstellen.
3	PB-Pegel	AUDIO OUT	R236 (CH1/L)	• PB • MH-F2 • 1 kHz ± 50 kHz Hub • AUDIO OUT an HiFi	1. Das 1 kHz segment (± 50 kHz Hub) des Abgleichbandes MH-F2 abspielen.
			R235 (CH2/R)		2. R236 so einstellen, daß $-9 \pm 0,5$ dB bei Wiedergabe an AUDIO OUT erhalten wird. 3. Auf gleiche Weise R235 für Kanal R (CH2) einstellen.
4	Pegelanzeige	FDP (Pegelan- zeige)	R289 (Anzeige CH1/L)	• AUX • AUDIO OUT auf HiFi • Begren- zerschalter auf OFF	Hinweis: Die Pegelanzeige-Einstellung nach der E-E Einstellung (Abschnitt 2.7, Nr. 1) durchführen. 1. Den Schalter SOURCE SELECT auf AUX stellen. Ein Audiosignal mit 1 kHz, -8 kHz über A/V CONN (beide Kanäle) anlegen. 2. Den Regler HiFi REC so einstellen, daß $-6 \pm 0,5$ dB bei AUDIO OUT erhalten werden. In Betriebsart E-E (STOP) R289 so einstellen, daß die FDP-Pegelanzeigen 0 dB anzeigen (alle weißen LEDs leuchten).
			R290 (Anzeige CH2/R)		3. Auf gleiche Weise R290 für Kanal R (CH2) einstellen.
5	NR Versatz	IC206 Pin 29	R267 (L Versatz)	• STOP (E-E)	1. In Betriebsart STOP (E-E) Vm-m (Pin 18) von IC206 mit einem Digitalvoltmeter messen.
		IC206 Pin 2	R268 (R Versatz)		2. R267 so einstellen, daß Vcc/2 bei IC206 Pin 29 erreicht wird. 3. Auf gleiche Weise R268 für Vcc/2 bei IC206 Pin 2 für den rechten Kanal (CH2) einstellen.

2.8 TUNER/IF-SCHALTUNG

Hinweis: Falls nicht anders angegeben, befinden sich alle Meß- und Einstellpunkte auf der TUNER/IF Platte.

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
Erforderliche Ausrüstung: 1. Oszilloskop 2. IF-Wobbelgenerator mit geeigneten Marken (PIF, SIF, usw.) 3. Gleichstromquelle – Für IF AGC Vorspannung (etwa 5 V variabel) 4. Wobbelsonde (Wobbelsignalkabel) wie unten gezeigt.					
 Abb. 2-8-1					
1	VCO 38.9 MHz	IC1, Pin 28	T2	• Wobbel • Generator	1. Die Sonde wie in der Abbildung gezeigt verwenden (für IF-Einstellung) und das IF-Wobbelsignal an den Eingang SAW 1 anlegen. 2. Gleichstrom 4,5 V an Pin 6 von IC1 (IF AGC) anlagen. Das Oszilloskop an Pin 28 (VIDEO DET OUT) anschließen und T2 so einstellen, daß die Hüllkurve mit den links aufgeführten Frequenzmarkierungen angeglichen wird. Hinweis: Der Wobbelgenerator-Ausgangspegel beträgt 70 dB μ/75 Ohm.  Abb. 2-8-2
2	Ausgangsstufe IF 38,15 MHz	TUNER (im Inneren des Tunerteils)	IF-Spule	• Wobbel • Generator	1. Die IF-Einstellsonde zum Anschluß an das IF-Wobbelsignal an den Testpunkt (TP) der Ausgangsstufe (TUNER) verwenden. 2. Die IF-Einstellung zum Anschluß des Eingangs SAW1 an den IF-Geber verwenden. 3. Den IF-Kern der Endstufe auf Maximalfrequenz einstellen.
3	FTZ-Falle	IC1, Pin 28	T1	• Farbbalken	1. Ein 32,4 MHz-Signal mit 400 Hz AM-Modulation an den Tuner TP anlegen. 2. Ein Oszilloskop an Pin 28 von IC1 anschließen und den Ausgangsseiten-Kern von T1 auf Minimumpegel einstellen.

SECTION 1

MECHANICAL ADJUSTMENTS

1.1 BEFORE PROCEEDING

Mechanism adjustments are required after replacing mechanical parts due to wear or defect. Since the mechanical and electrical systems are interrelated, correct mechanism adjustment forms the reference for electrical adjustments.

In order to operate the mechanism with the cassette housing removed, place a sheet of insulating material on the upper right portion of the chassis, then set the cassette housing on top of this. Leave the housing connected to the V/M/S board. Insert a spare cassette (one which has the REC safety tab broken off) and after completion of loading, the desired mode can be selected with the operation buttons.

1.2 SPECIAL TOOLS AND FIXTURES

In addition to the tools and instruments required for electrical adjustments, the tools and fixtures illustrated in Table 1 are needed for mechanism adjustments of this model.

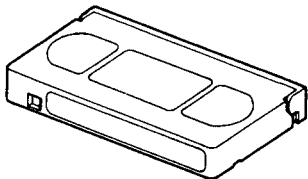
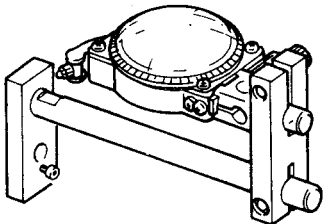
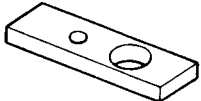
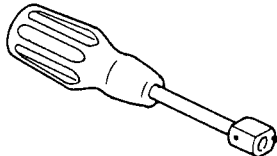
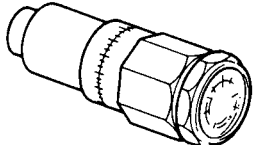
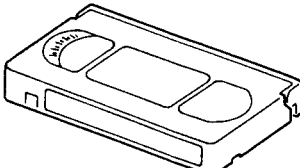
JVC alignment tape MH-2/MH-F2 	Micro-checker PUJ49712-2 	Spacer (for micro-checker) PUJ44905 
A/CTL head position tool PUJ47351-2 	Torque gauge assembly PUJ48075-2 (Torque meter: 600ATG Torque gauge head: PUJ48016-2) 	Back tension cassette gauge PUJ48076 

Table 1-2-1 Tools and fixtures

1.3 DISASSEMBLY

1. Top cover and bottom cover

— Top cover —

- 1) Take out four screws, then remove the top cover in the arrow direction.

— Bottom cover —

- 1) After removing the top cover, take out four screws, then remove the bottom cover.

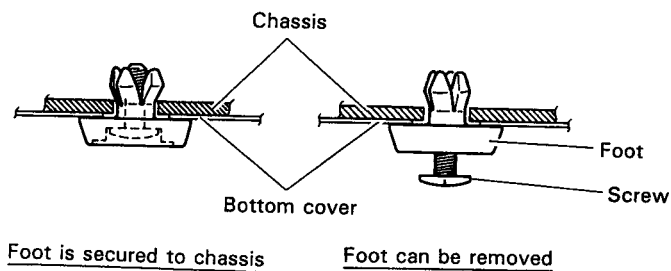
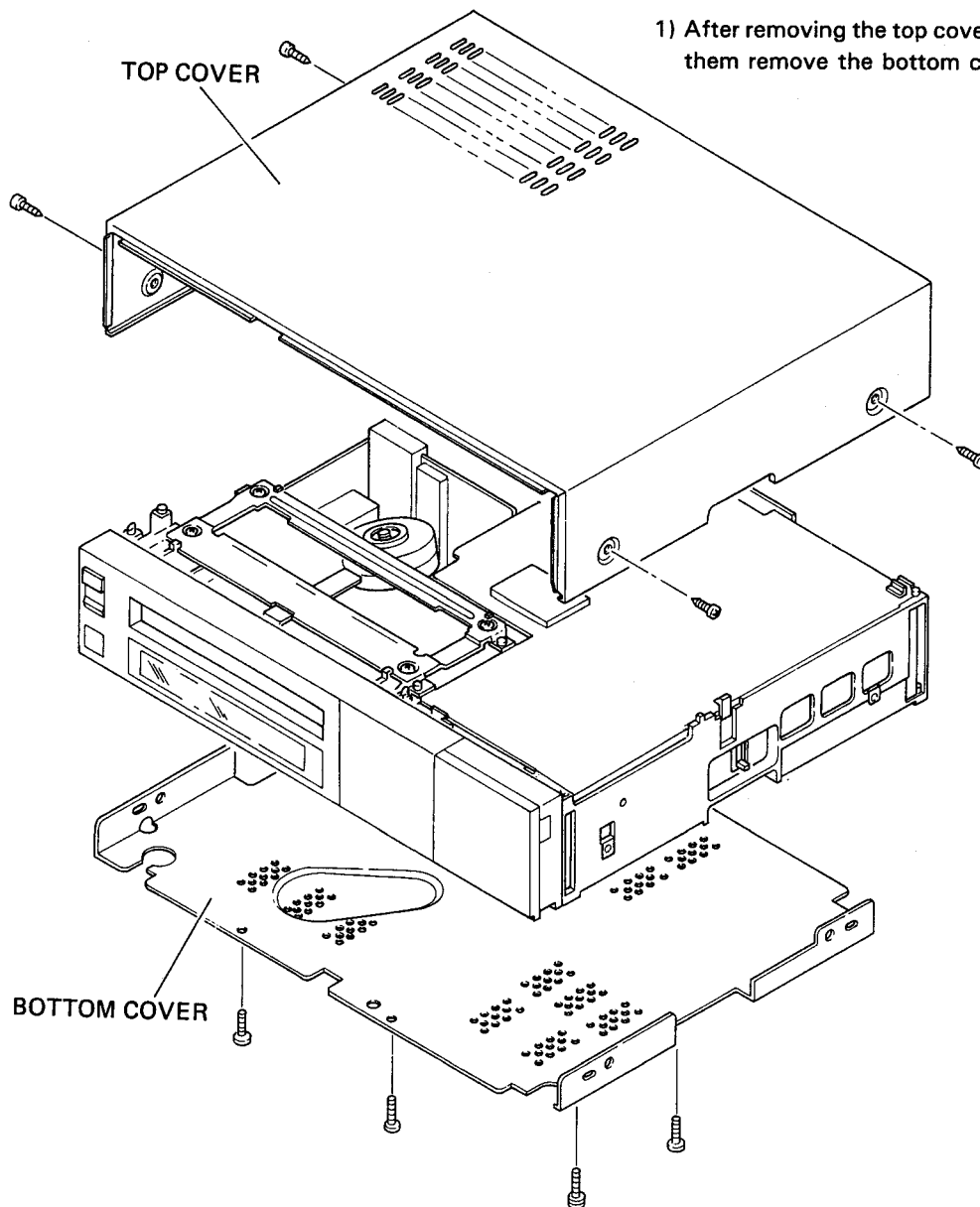


Fig. 1-3-1 Top and bottom covers

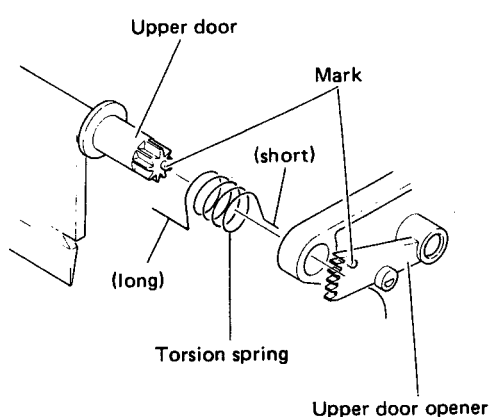
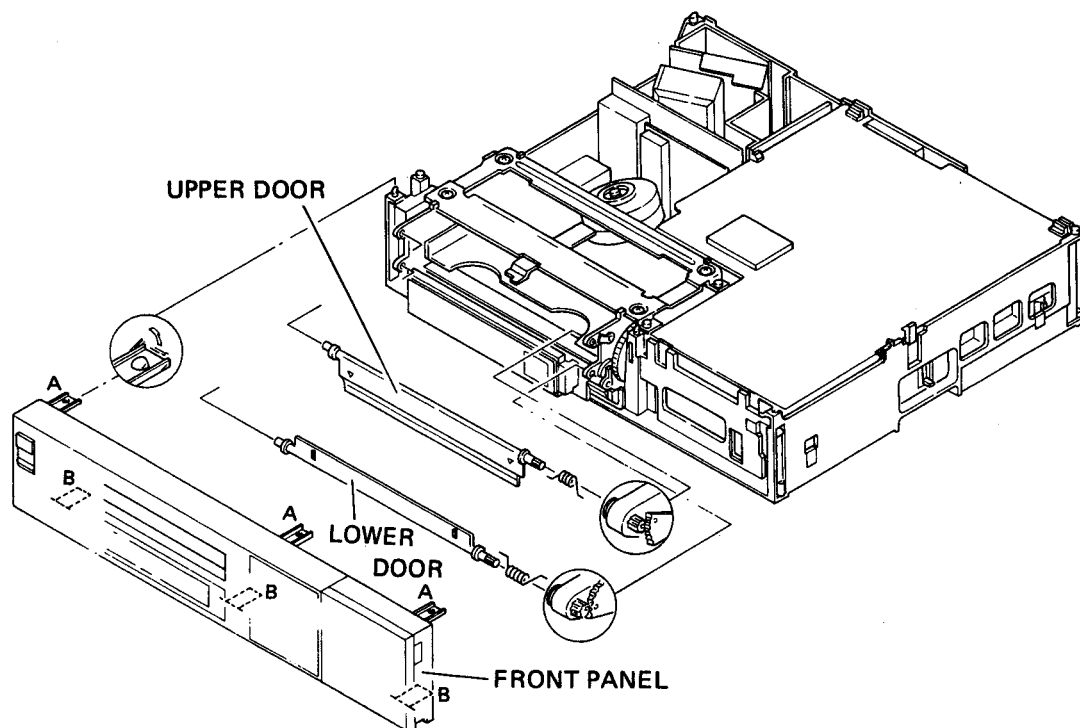
2. Front panel and cassette doors

— Front panel —

- 1) After removing the top cover, bend three points A of the front panel upwards to disengage them from the chassis, then pull the front panel outwards.
- 2) Disengage three points B of the front panel from the chassis for removing the front panel.

— Cassette doors —

- 1) Move the lower door fully to the right, then disengage the left end of the lower door from the cassette housing.
- 2) Pull the lower door out to the left. Use care regarding the torsion spring.
- 3) Remove the upper door in the same manner as the lower door.



Notes:

When reassembling the doors, proceed as follows:

- 1) Locate the mark on the gear portion of the upper door.
- 2) Set the long straight part of the torsion spring toward the upper door.
- 3) Install the upper door so that the mark noted in Step 1) is aligned with the mark on the upper door opener of the cassette housing.
- 4) Install the lower door in the same manner as the upper door.

Fig. 1-3-2 Front panel/cassette doors

1.4 PERIODIC MAINTENANCE

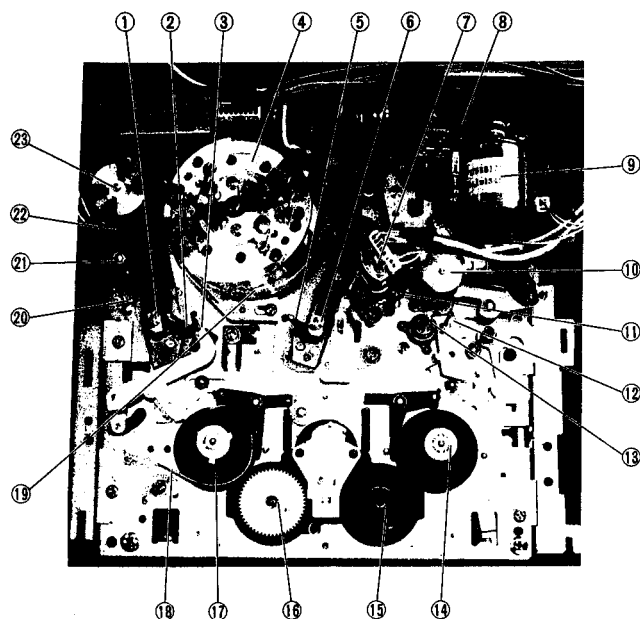
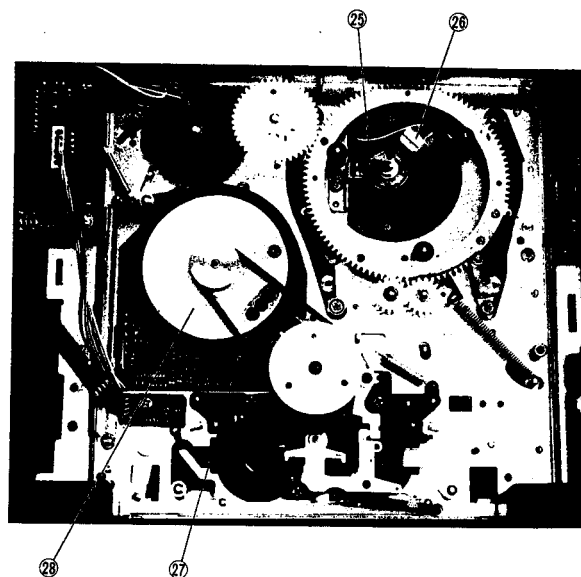


Fig. 1-4-1 Top view



1-4-2 Bottom view

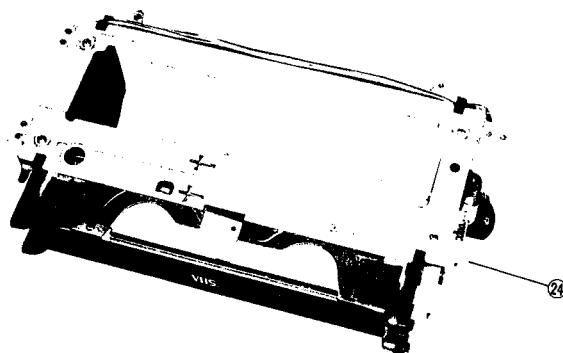


Fig. 1-4-3 Cassette housing

- | | |
|----------------------|---------------------|
| 1 SUP guide roller | 16 SUP clutch |
| 2 SUP slant pole | 17 SUP reel disk |
| 3 Tension pole | 18 Tension band |
| 4 Upper drum | 19 Lower drum |
| 5 T.U. slant pole | 20 SUP guide pin |
| 6 T.U. guide roller | 21 SUP guide pole |
| 7 Audio/Control head | 22 Full erase head |
| 8 Motor control belt | 23 Impedance roller |
| 9 Mode control motor | 24 Cassette motor |
| 10 Pinch roller | 25 Brush |
| 11 T.U. guide pole | 26 Pick-up head |
| 12 Guide arm | 27 Reel belt |
| 13 Capstan | 28 Capstan motor |
| 14 T.U. reel disk | |
| 15 T.U. clutch | |
- T.U. : Take-up
SUP : Supply

1.5 MAIN ASSEMBLY REPLACEMENT

1.5.1 Upper drum

- 1. Unsolder the wires connecting the lower drum from the relay pins of the upper drum (perform quickly to avoid damaging the wires by overheating).

RELAY PIN COLOR	CHANNEL	INNER/OUTER
Brown	SP. CH-1	Brown/Green
Red	SP. CH-2	Red/Clear
Blue	LP. CH-1	Blue/Black
Orange	LP. CH-2	Orange/Yellow
Gray	A-1	Violet/Yellow Green
Gray	A-2	Pink or Light Gray /White

Table 1-5-1 Upper drum wiring

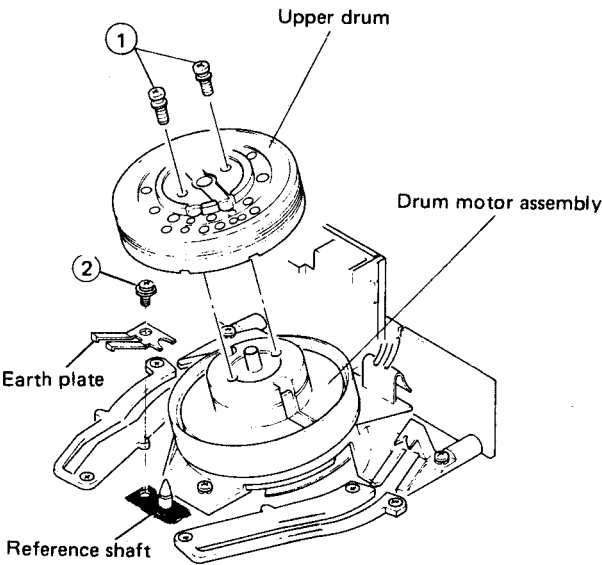


Fig. 1-5-1 Upper drum replacement

- 2. Take out two screws ① and remove the upper drum in the upward direction.
- 3. Use alcohol to clear the lower face of the new upper drum and the upper face of the lower drum. When handling and installing the new upper drum, avoid directly touching the head tips and use care not to scratch the drum.
- 4. Reassemble by reversing the above steps. When resoldering, observe the correct channels (refer to Table 1-5-1) and avoid overheating the wires.
- 5. Perform the upper drum eccentricity adjustment.
 - 1) Supply power and set for the Play mode without cassette housing (refer to section Table 1-5-1). After completion of loading, disconnect from power.

- 2) Take out screw ② and remove the earth plate as shown in Fig. 1-5-1.
- 3) Set the micro-checker on the reference shaft as shown in Fig. 1-5-2. Use a hex wrench (metric) to tighten the mounting screw.

Caution: The micro-checker is a test fixture for measuring eccentricity of the upper drum. When using this fixture, observe the following precautions.

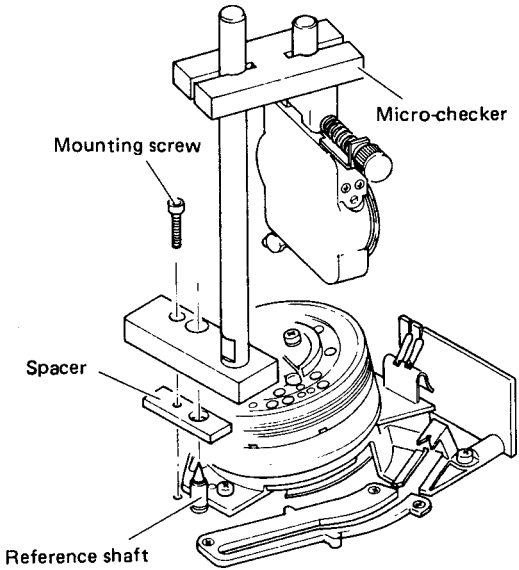


Fig. 1-5-2 Micro-character mounting

- As the instrument is extremely precise, use special care not to drop it or subject it to strong vibration.
- Do not apply strong force to the test probe.
- The outer frame of the scale can be turned about 7 scale divisions. Do not turn it forcibly (force greater than 300 g-cm).
- Use care that the test fixture does not contact the video heads.
- Before mounting, turn the fine adjust knob counter clockwise (to where the spring tension is no longer felt).
- Do not apply power while the test fixture is installed.
- 4) Check and readjust the micro-checker position. The correct position is achieved when:
 - The test probe contact point is 2 or 3 mm under the top surface of the upper drum.
 - The test probe movement direction is toward the center portion of the upper drum.
- 5) Gradually turn the fine adjust knob clockwise so that the test probe contacts the upper drum. The dial indicator registers zero on the scale.
- 6) While using care not to apply lateral pressure to the upper drum, slowly turn the upper drum and read the deviations indicated by the micro-checker.

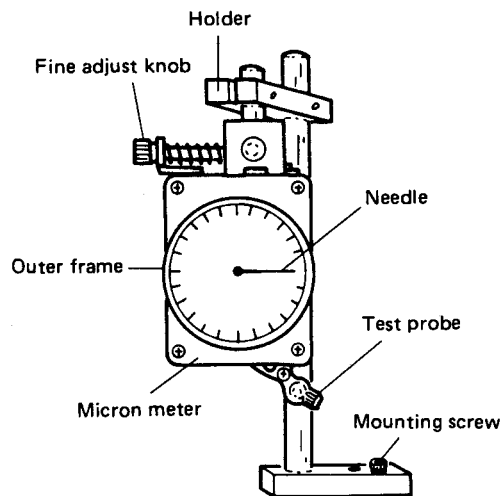


Fig. 1-5-3 Micro-checker

- 7) Check for needle deflection within 4 microns.
 - 8) If deviation is greater than 4 microns, after turning the fine adjust knob counterclockwise to disengage the test probe from the upper drum, loosen two screws ① and carefully readjust the upper drum position, then retighten the two screws in a balanced manner. Repeat above steps 4) to 6).
 - 9) After using, turn the fine adjust knob counterclockwise and remove the micro-checker.
 - 10) After reinstalling the earth plate, supply power and set for the Stop mode.
6. Perform the interchangeability adjustment.

1.5.2 Audio/control head

1. Disconnect connectors CN1 and CN2 from the A/CTL HEAD board. (See Fig. 1-5-4)
2. Take out screws ① and remove the audio/control head with the head base.

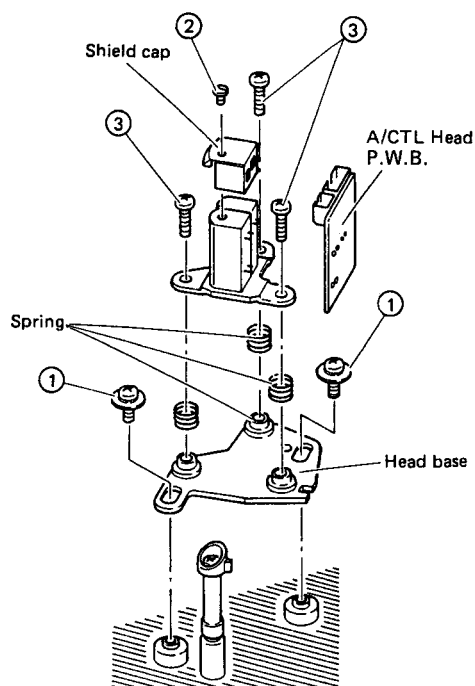


Fig. 1-5-4 Replacement of A/CTL head

3. Unsolder the six terminals coming from the heads and remove the A/CTL HEAD P.W.B.
 4. Take out screw ② and remove the shield cap from the audio/control head.
 5. Take out screws ③ to separate the audio/control head from the head base. Use care regarding springs.
 6. Replace the audio/control head and reassemble by reversing the above steps.
- Before mounting on the main-deck, perform rough-adjustment of audio/control head height as shown in Fig. 1-5-5.

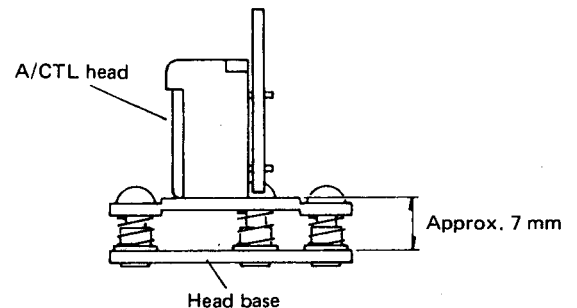


Fig. 1-5-5 A/CTL head height

7. Perform the tape transport/interchangeability checks and adjustments.

1.5.3 Reel disk

1. After replacing the reel disks, perform back tension checks (see 1.6.4).

1.5.4 Clutch Mechanism

1. After replacing the take-up/supply clutch and/or clutch mechanism, perform take-up torque check (see 1.6.3).

1.5.5 Tension band

1. After replacing the tension band, perform tension pole position check and adjustment (see 1.6.2). Perform back tension checks (see 1.6.4).

1.6 CHECKS AND ADJUSTMENTS

1.6.1 Mechanism timing check

- Loading rings and loading gear (2)

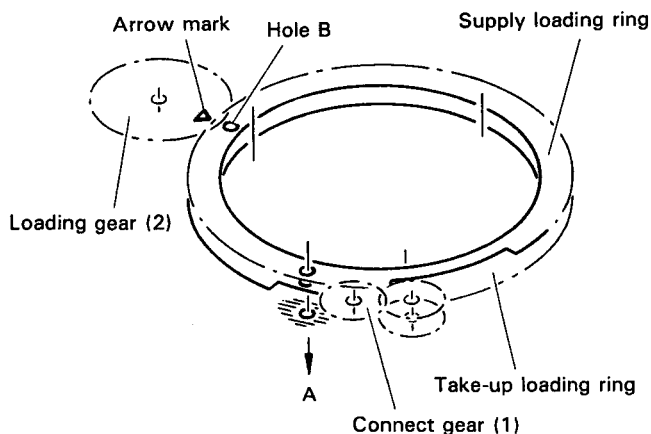


Fig. 1-6-1 Loading ring/loading gear (2)

1. Confirm that the two holes of supply and take-up loading rings are overlapped through the hole of the maindeck (arrow A in Figure). If a discrepancy is noted, after removing the connect gear (1), adjust the loading rings to obtain the correct position. Holes are overlapped in the Stop (FF/REW) mode position.
2. At the same time, confirm that the arrow mark of the loading gear (2) corresponds with hole B of the supply loading ring. If a discrepancy is noted, remove and reinstall the loading gear (2) to obtain the correct position.

- Cam gear (drive gear bracket) and loading gear (1)

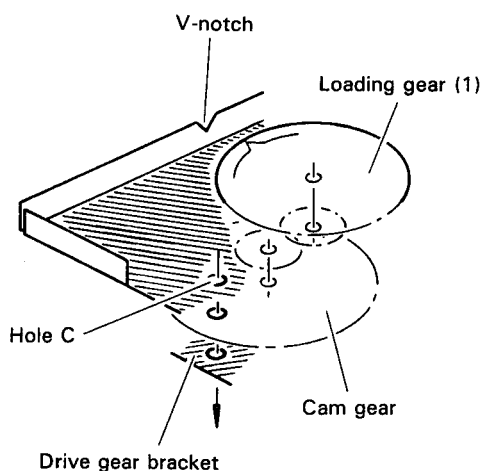


Fig. 1-6-2 Cam gear/loading gear (1)

1. When the two holes of cam gear and drive gear bracket are overlapped through the hole C of the main-deck (FF/REW mode position), confirm that the arrow indication of loading gear (1) is aligned with the V-notch of the main-deck. If a discrepancy is noted, remove and reinstall the loading gear (1) to obtain the correct position.

1.6.2 Tension pole position check

- 1) With the cassette housing removed, set for the play mode.
- 2) As shown in Fig. 1-6-3, confirm that the center of the tension pole is aligned with the left edge of the supply guide pin bushing.
- 3) If required, loosen screw (1) and adjust the mounting position of the tension band holder.

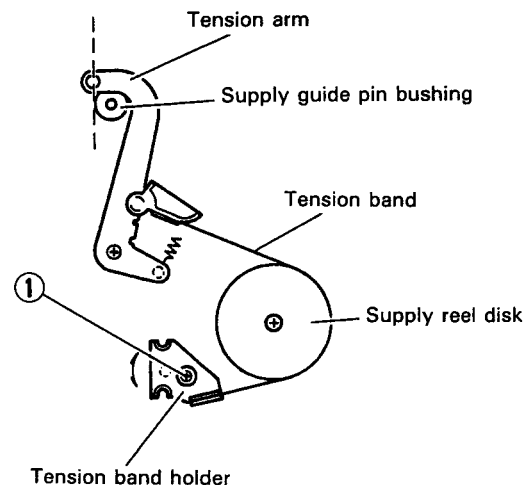


Fig. 1-6-3 Tension pole position

1.6.3 Take-up torque check

- 1) With the cassette housing removed, set for the Play (SP) mode.
- 2) Set the torque gauge on the take-up reel disk.
- 3) Relax the grip on the gauge and at the point the gauge begins to rotate, read the scale indication.
- 4) Confirm a value between 60 and 100 gf.cm.

1.6.4 Back tension check

- 1) First confirm correct tension pole position.
- 2) Use the back tension cassette gauge and set for the Play (SP) mode.
- 3) Confirm a value between 11 and 18 gf.cm. If outside this range, check the tension arm spring and if necessary, replace the tension band. In some cases, the supply reel disk may need replacement.

1.7 TAPE TRANSPORT SYSTEM CHECKS AND ADJUSTMENTS

- The tape transport system has been precisely aligned at the factory and normally does not require readjustment. The following check is therefore necessary only in cases of severe usage or when replacing parts affecting the tape transport system.

1.7.1 Guide rollers

Guide roller height adjustment is required in order to attain FM waveform linearity at the drum input and output sides during interchangeability adjustments. To adjust guide roller height, loosen the setscrew (1.25 mm hex) and turn the guide roller with a flat blade screwdriver.

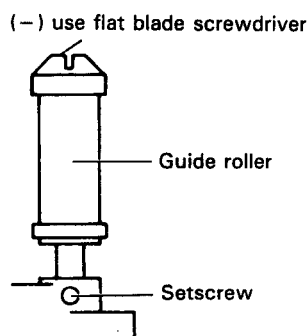


Fig. 1-7-1 Guide roller

Use a spare cassette (not Alignment tape) and while the tape is running, inspect visually for smooth transport at the drum input side and along the drum lead channel. If necessary, adjust the supply guide roller height.

Inspect the tape transport at the drum output side and if necessary, adjust the take-up guide roller height.

1.7.2 Supply guide pole

This guide pole serves to improve tape transport stability between the cassette output and drum input by maintaining the required height.

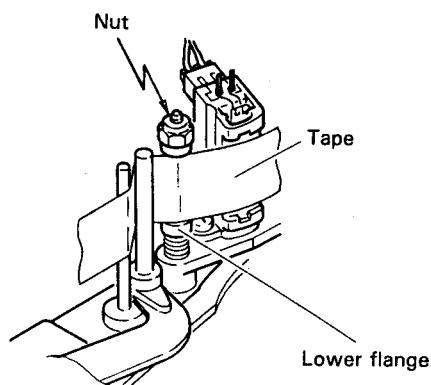


Fig. 1-7-2 Supply guide pole

After adjusting the supply guide roller, this is adjusted by turning the upper nut (5.5 mm nut driver) to obtain smooth tape transport at the lower flange of the guide pole.

1.7.3 Audio/control head inclination (take-up guide pole)

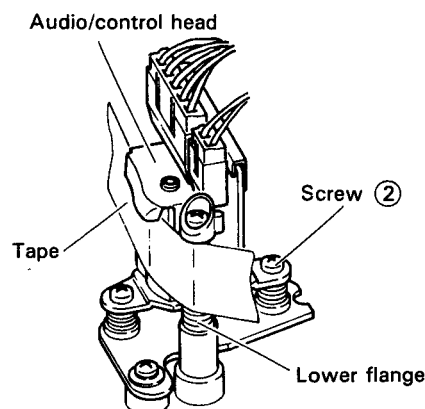


Fig. 1-7-3 A/CTL head inclination

This is a vital adjustment for interchangeability. After adjusting the take-up guide roller, observe the tape transport at the lower flange of the take-up guide pole. Use a cross-head screwdriver and turn screw ② counter-clockwise to where wrinkles begin to appear in the tape at the lower flange.

Then gradually turn the screw clockwise to the point where the wrinkles no longer appear.

Azimuth and height of the audio/control head are adjusted during interchangeability adjustments.

1.8 INTERCHANGEABILITY CHECKS AND ADJUSTMENT

Before using costly Alignment tape, use a spare cassette and confirm proper tape transport without damage to the tape.

1.8.1 FM waveform

The FM waveform checks and adjustments are performed using the staircase signal of the MH-2 Alignment tape. Connect an oscilloscope to the FM output test point of the video play-back circuit and trigger the oscilloscope externally with the signal from the flipflop (FF) test point of the video circuit.

1. Play the MH-2 Alignment tape and adjust the tracking for maximum FM output. With the maximum taken as (a), the minimum center output as (b), the minimum at the drum input as (c) and the minimum at the drum output as (d), confirm the following relationship.

$$\frac{b}{a} \cong 0.7 \quad \frac{c}{a} \cong 0.5 \quad \frac{d}{a} \cong 0.5$$

(Video FM waveform)

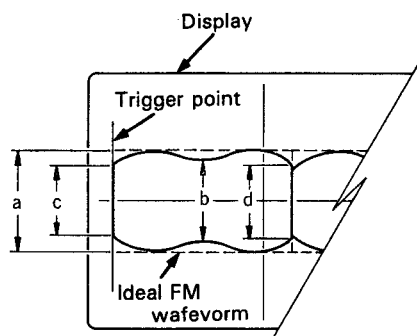


Fig. 1-8-1 FM waveform

2. Adjustment is required if the waveform does not meet the above specifications and also if overall variation of the FM waveform is not linear. In this latter case, proportional level decline would occur with even slight tracking deviation to produce noise in the picture.
3. Operate the tracking control and vary the FM waveform from maximum to minimum, then from minimum to maximum. Observe the waveform portion corresponding to the drum input and confirm essentially parallel variation. However, if the variation is in a see-saw pattern, the supply guide roller height requires adjustment. In other words, the tape is not properly following the drum lead at the drum input side. Adjust the supply guide roller height so that the variation is as parallel as possible.

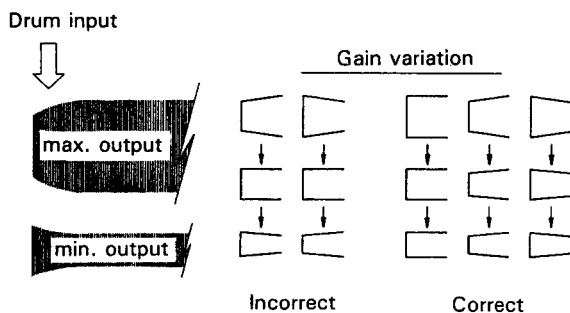


Fig. 1-8-2 Input FM waveform

4. Similarly, observe the FM waveform portion corresponding to the drum output and if necessary, adjust the take-up guide roller height so that the variation is as parallel as possible.

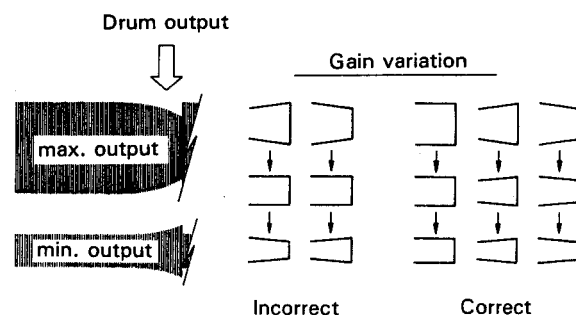


Fig. 1-8-3 Output FM waveform

5. Next, observe the entire FM waveform. So that the overall variation is as parallel and linear as possible, carefully adjust both guide rollers.
6. After adjusting the guide rollers, check for absence of tape wrinkles or creases at the take-up and supply guide poles. If these are observed at the supply guide pole, adjust the guide pole height with attention to the tape transport at the lower flange of the pole. Perform carefully, since this affects the FM waveform risetime. If wrinkles or creases are observed at the take-up guide pole, adjust the audio/control head inclination (some recent models do not have adjustable take-up guide poles) with attention to the tape transport at the lower flange of the pole. Afterwards, again check the FM waveform.

1.8.2 Audio/control head adjustment

Incorrect position of the audio/control head reduces the play-back audio output, impairs S/N and in severe cases, interferes with servo stability due to inability to pickup the control signal.

Observe the audio signal waveform by connecting an oscilloscope to the audio output test point of the audio circuit or directly to the audio output terminal. In some cases, connecting headphones and directly listening to the sound forms a useful test.

1. Play the staircase (audio 6 kHz) section of the MH-2 Alignment tape.
2. Adjust the azimuth by turning screw ③ for maximum audio output.
3. Adjust the height by turning screws ①, ② and ③ by small and equal increments (about 45°) at a time for maximum audio output. For ("Normal") stereo models, also adjust for balanced outputs from the right and left channels.

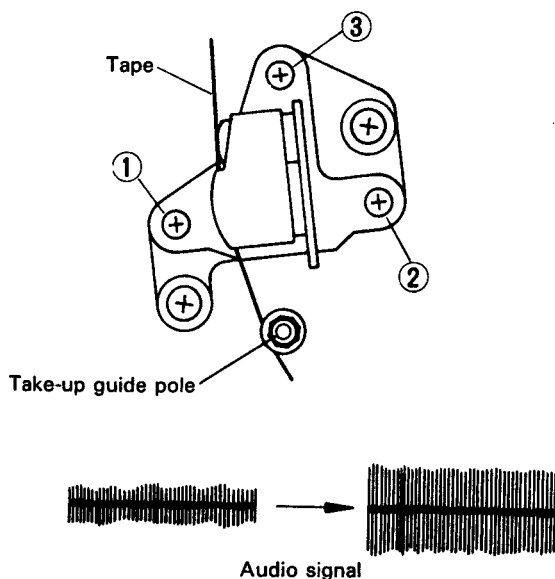


Fig. 1-8-4 A/CTL head adjustment

4. For stereo models, also play the color bar (audio 1 kHz) section of the MH-2 Alignment tape and adjust to eliminate phase difference between the right and left channels.

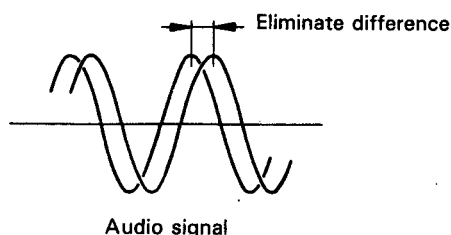


Fig. 1-8-5 Audio phase

5. Again check the FM waveform. If acceptable, carefully tighten the setscrews of the guide rollers. Since this may disturb the FM waveform, check again after tightening the screws.

1.8.3 Control head phase (X Value)

Incorrect adjustment of the X value can cause a time difference between picture and sound play-back. This is more likely to be noticed in the LP mode than the SP mode.

Observe the FM waveform by connecting an oscilloscope to the FM output test point of the video circuit. Trigger the oscilloscope externally with the flipflop signal and set the slope to minus (–) to observe the CH 1 waveform. Set the tracking control to the center click (AUTO) position.

1. Play the stairstep section of the MH-2 Alignment tape.
2. Slightly loosen screws ④ and ⑤ of the audio/control head. Place the A/CTL head positioning tool over screw ④ with the pin of the tool inserted in the adjustment hole near the screw.
3. Turn the tool counter-clockwise to position the audio/control head fully toward the capstan side.
4. Gradually turn the tool clockwise while observing the CH 1 FM waveform. At the first output peak, stop turning and immediately tighten screw ⑤. Then tighten screw ④.

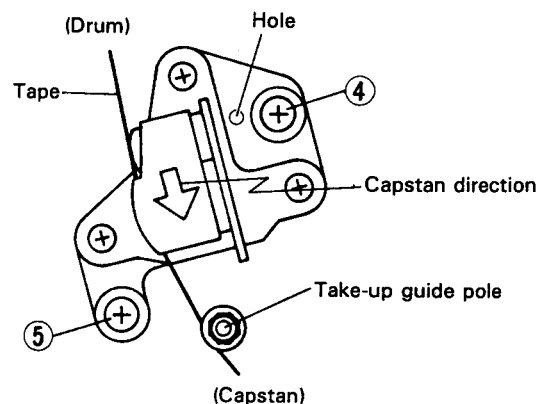


Fig. 1-8-6 Control head phase

5. Operate the tracking control and confirm that maximum FM waveform is obtained at the center click position.

1.8.4 Final checks

1. Supply a video or TV signal input, record and play-back. Confirm that the FM waveform conforms to the video FM waveform specifications (SP and LP modes).
2. For VHS Hi-Fi models, connect an oscilloscope to the audio FM output of the FM audio play-back circuit. Play the FM audio signal (carrier only) of the MH-F2 Alignment tape. Confirm absence of serious dips in the FM waveform.
3. Refer to Electrical Adjustments and perform overall checks and adjustments of the servo, video and audio (including FM audio) circuits.

SECTION 2 ELECTRICAL ADJUSTMENTS

2.1 BEFORE PROCEEDING

Perform all mechanical and electrical repairs and replacements before proceeding with the adjustments described in this section.

Avoid disturbing internal controls unnecessarily, particularly during field service when the full range of test instruments is not available.

2.1.1 Required test equipment

- Properly adjusted color monitor-TV
- Oscilloscope, dual-trace with delay function
- Color bar generator
- Frequency counter
- Audio signal generator
- Digital voltmeter
- Spare cassette tape for recording and playback tests
- Alignment tape (correct type for this model)

2.1.2 Nomenclature for this section

The check and adjustment steps are given in the form of a chart. For clarity, the terms used in the chart are defined below.

No.	Sequential number of the check or adjustment step
Item	Name of the check or adjustment step
Checkpoint	Location for applying test instrument
Adjustment Parts	Potentiometer, trimmer capacitor, etc. to be adjusted
Mode and Conditions	Input signal and operating mode required during adjustment
Color bar	Color bar input signal
Stairstep	Stairstep input signal
1 kHz	1 kHz audio input signal
MH-2 Color bar	Play Color bar signal of MH-2 Alignment tape.
MH-2 Stairstep	Play Stairstep signal of MH-2 Alignment tape.
MH-2 3 kHz	Play 3 kHz audio signal of MH-2 Alignment tape.
MH-2 1 kHz	Play 1 kHz audio signal of MH-2 Alignment tape.

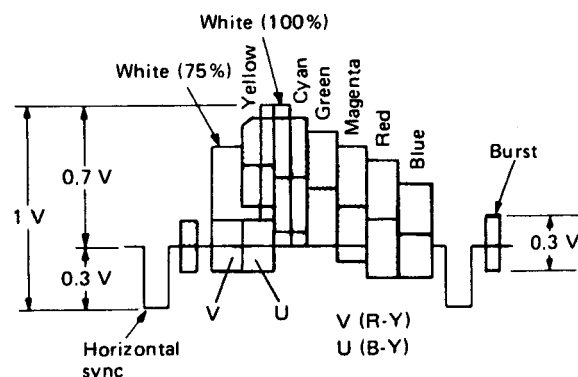


Fig. 2-1-1 Color bar waveform

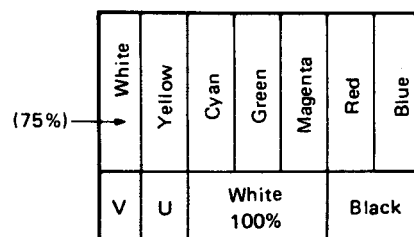


Fig. 2-1-2 Color bar pattern

MH-F2 1 kHz deviation	Play 1 kHz modulated signal of MH-F2 alignment tape.
STOP	Supply power and set for the Stop mode.
REC	Recording mode
PB	Playback mode
REC→(another mode)	Record a signal, then switch to another operating mode (e.g., Playback)
STILL	Still mode playback
SEARCH	Shuttle Search (Forward and Reverse) playback mode
A DUB	Audio dubbing mode
Adjustment and Check	Adjustment method, notes, waveforms, etc.

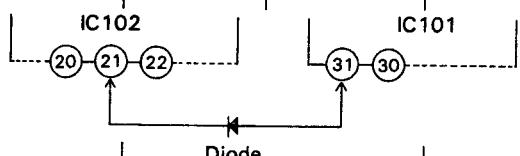
2.2 POWER SUPPLY CIRCUIT

Note: Unless otherwise noted, test and adjustment points are located on the power supply board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	DC 9 V	CN 2 pin 3	R21	• REC	1) Adjust R21 for 9.30 ± 0.1 V at CN 2 pin 3.
2	DC 5 V	CN 2 pin 4	R15	• REC	1) Adjust R15 for 5.31 ± 0.1 V at CN 2 pin 4.

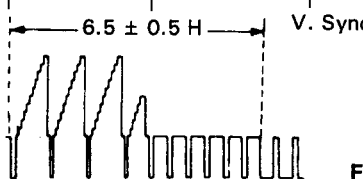
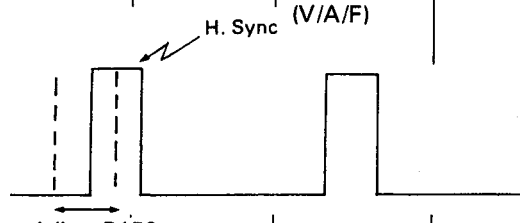
2.3 TIMER CIRCUIT

Note: Unless otherwise noted, test and adjustment points are located on the T/M/S (Timer) board.

1	Timer Clock	TP2	C102	• E-E	 Fig. 2-3-1 1) Connect a frequency counter to TP-2. 2) Briefly short pin 31 of IC101 and pin 21 of IC102 with a diode as shown Fig. 2-3-1. 3) Connect a jumper wire between TP-5 and GND. 4) Adjust C102 to obtain $f = 2048.010 \pm 0.002$ Hz
2	ON Screen Clock Adj.	TP1	R10	• E-E	1) Connect a frequency counter to TP1. 2) Short TP7 and TP4 to the GND. 3) Adjust R10 to obtain frequency $6.30 \text{ MHz} \pm 0.05 \text{ MHz}$

2.4 SERVO CIRCUIT

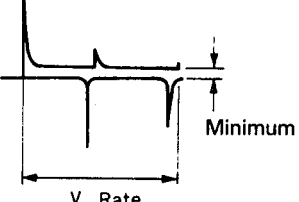
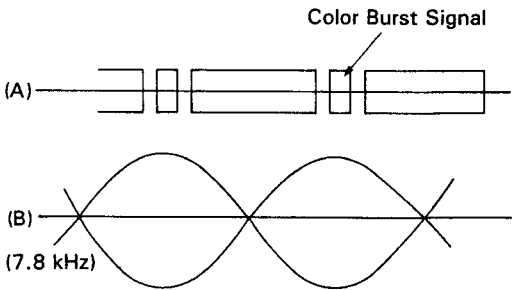
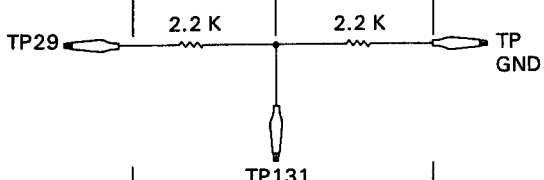
Note: Unless otherwise noted, test and adjustment points are located on the T/M/S (Servo) board.

1	SP PB Switching Point	TP10 (VIDEO OUT) (V/A/F)	R149 (V/A/F)	• SP • PB • MH-2 Stairstep • -Slope	 Fig. 2-4-1 1) Connect an oscilloscope to TP10 (VIDEO OUT) of the V/A/F board and trigger the oscilloscope externally with the signal from TP11 (DRUM FF) of the PRE/REC board. Set the trigger slope to minus (-). 2) Play the stairstep signal of the MH-2 Alignment tape and adjust R149 of the V/A/F board to position the switching point $6.5 \text{ H} \pm 0.5 \text{ H}$ from V. sync.
2	V. Pulse position	• Monitor-TV • Video output	R423 (Rear panel)	• Self REC - PB • SP • Still • Color bar	1) Record, then play back a color signal. Set to the Still mode. 2) Observe the monitor-TV and adjust R423 of the rear panel to minimize vertical jitter.
3	H. Discriminator	TP12 (V/A/F)	R150 (H. DISCRI) (V/A/F)	• MH-2 Color bar • PB→Still	 Fig. 2-4-2 1) Connect the oscilloscope to TP27 of the V/A/F board. 2) Play the color bar signal of the MH-2 Alignment tape and use a felt marker etc. to mark the horizontal sync signal position on the oscilloscope screen. 3) Set for the Still mode and adjust R150 of the V/A/F board to position the H. sync signal at the marked location.
4	Slow Tracking	• Monitor-TV	R151, R152, R153 (V/A/F)	• Color bar • PB	1) In sequence, record a color bar signal in the SP, then the LP mode. 2) Play back in the FWD Slow mode and adjust R153 (SP) and R152 (LP) of the V/A/F board to minimize noise. 3) Play back in the REV slow mode and adjust R151 (LP) of the V/A/F board to minimize noise.

2.5 VIDEO CIRCUIT

Note: Unless otherwise noted, test and adjustment points are located on the V/A/F MA (Video) board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	VXO	TP106 (V/A/F)	R179 (V/A/F)	• PB • MH-2 Color bar • SP	1) Connect a frequency counter to TP106 of the V/A/F board. 2) Play the color bar signal of the MH-2 Alignment tape and adjust R179 of the V/A/F board to obtain $4.433619 \text{ MHz} \pm 50 \text{ Hz}$.
2	REC FM Level	TP4 (PRE REC)	R39 (V/A/F)	• LP • REC • Color bar	1) Connect an oscilloscope to TP4 of the PRE REC board. Adjust R50 of the V/A/F board so that level A is $1.3 \pm 0.05 \text{ Vp-p}$. Adjust center value of level. $A = 1.3 \pm 0.05 \text{ Vp-p}$ Fig. 2-5-1
3	SP REC Color Level and Channel Difference	TP104	R40 (PRE REC)	• MH-2 Color bar • SP • REC Color bar • PB • SP	1) Connect an oscilloscope to TP104 of the board. Play color bar signal of the MH-2 Alignment tape and adjust the TRACKING control for maximum waveform. Make a note of the larger of the channel levels as level A. 2) Set the TRACKING control to the center click position. 3) Use a spare cassette to record a color bar signal, then play back. Adjust R40 of the PRE REC board so that the larger of the channel levels equals level A ($100 \pm 5\%$). Fig. 2-5-2
4	LP REC Color Level and Channel Difference	TP104 (PRE REC)	R41 (PRE REC)	• PB MH-2; record and play-back color bar (LP mode)	1) Short TP29 and TP121. Make a note of the larger channel color level at TP104. 2) Remove the short, then record and playback a color bar signal in the LP mode. Adjust R41 so that the channel level is $80 \pm 5\%$ of that measured above. Then confirm a level difference between channels of within $\pm 3 \text{ dB}$. Fig. 2-5-3 Notes: *Perform the SP mode adjustment first. *If larger and smaller level channel reverses between self REC/PB and MH-2 PB, confirm that the total level difference is within $\pm 3 \text{ dB}$. *During MH-2 play-back, adjust tracking for the optimum point.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
5	Y NR (NC Balance)	TP23	R45	- E-E - SP Color bar	1) Connect the oscilloscope to TP23 and adjust R45 to minimize noise at the waveform center (less than 5 mVp-p).  Fig. 2-5-4
6	Y NR Input Level	TP21 TP22	R57	- E-E - Color bar - SP - V NR: ON	1) Adjust R57 to obtain the same Y level at TP22 and TP21 (within ± 0.2 dB). Perform final check using the same probe.
7	Delay Color Level	TP105	R168	PB SP Color Bar	1) Measure the level at TP105. Then short TP129 and TP130 to ground and again measure. 2) To obtain the same level in both cases, adjust R168.
8	0.5 H Delay Video Level	VIDEO OUT	R23	Search LP Color Bar	1) Connect oscilloscope to VIDEO OUT and adjust R23 so that the direct and 0.5 H delayed signal levels are the same during LP self-REC/PB Search mode. Also confirm absence of level step difference before and after the noise bar.
9	APC Error Phase	TP105 TP128	L33	PB SP Color Bar	1) Connect dual trace oscilloscope to TP105 and TP128. Adjust the core of L33 to obtain the relationship between the burst phase (A) and 7.8 kHz waveform phase (B) indicated in the Fig. 2-5-5.  Fig. 2-5-5
10	0.5 H Delay Jump Det	TP132	R160	E-E No Signal	1) Connect the circuit shown in the figure to TP29, TP GND and TP131. Set the input selector switch to LINE. (No signal input) 2) Adjust R160 to obtain 30.0 ± 0.2 kHz at TP132.  Fig. 2-5-6

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
11	SP 2 MHz Frequency Response and Channel Difference	VIDEO OUT	R2	• REC/PB SP Sweep PB	1) Terminate video out at 75 Ω and set the sharpness control to the center position. 2) Record and play-back. Confirm that frequency response difference between channels is within 2 dB. 3) Adjust R2 so that the 2 MHz frequency response of channel 1 is 0 ± 1 dB.
12	LP 2 MHz Frequency Response and Channel Difference	VIDEO OUT	R1	• REC/PB LP Sweep	1) In the same manner as Item 10, confirm that channel difference during self-REC/PB is within 2 dB. 2) Adjust R1 so that 2 MHz frequency response is -4 ± 1 dB. Note: Adjust for SP first.
13	SECAM AMP	TP110	R191	• E-E SECAM Color Bar	1) Adjust R191 for 8 Vp-p waveform at TP110. (Refer Fig. 2-5-7)
14	SECAM DET	TP110	L34	• E-E SECAM Color Bar	1) Adjust the core of L34 so that the TP110 waveform appears as shown in the Fig. 2-5-7. 2) Record and play-back PAL and SECAM signals in the LP mode. Observe the picture on a monitor and confirm normal operation and presence of color in both cases. Set this point to center position between points "A" and "B". Fig. 2-5-7

2.6 NORMAL AUDIO CIRCUIT

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Bias Level	TP402 TP403	R434	• SP • REC • 1 kHz	1) Use a millivoltmeter to measure voltage between TP402 and TP403 on the Audio board. 2) In the EP REC mode, adjust R434 to obtain 2.6 mVrms.
2	REC/PB Level	AUDIO OUT	R423	• SP • REC then PB • 1 kHz	1) Apply a 1 kHz – 8 dBs sinewave signal to the audio inputs. 2) Use a millivoltmeter to measure the audio output terminals. So that the audio REC/PB level is – 6 dBs, adjust R423 (PB. LEVEL)

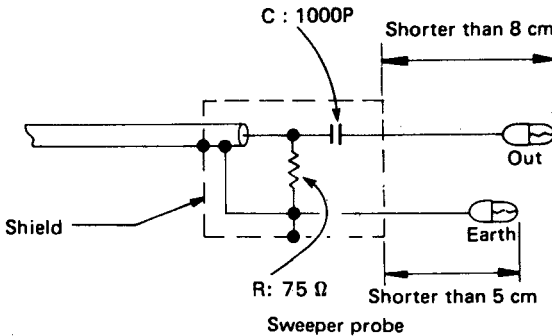
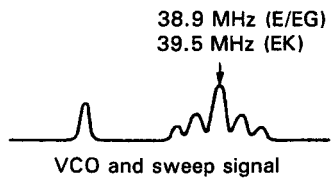
2.7 FM AUDIO CIRCUIT

Note: Unless otherwise noted, test and adjustment points are located on the V/A/F board.

1	E-E Level	AUDIO OUT	R247 (CH-1) R250 (CH-2)	• E-E • Input: External • 1 kHz, – 8 dBs • Audio Limiter: ON • Hi-Fi Stereo	1) Supply 1 kHz – 8 dBs signals to the audio inputs (both channels). 2) Set the AUDIO LIMITER switch to ON. 3) Adjust R247 (CH-1) and R250 (CH-2) to obtain – 6 ± 0.5 dBs at the audio outputs.
2	REC FM Level	TP201 (REC FM)	R228	• No signal • REC	1) Without an audio input signal, set for the REC mode. 2) Adjust R228 to obtain 2.2 Vp-p at TP201.
3	PB Level	AUDIO OUT	R236 (CH-1) R235 (CH-2)	• PB • Audio Monitor: Hi-Fi Stereo • MH-F2: 1 kHz	1) Play 1 kHz ± 50 kHz deviation signal of MH-F2 Alignment tape. 2) Adjust R236 (CH-1) and R235 (CH-2) to obtain – 9 ± 0.5 dBs audio output levels.
4	Level Indicators	FDP (LEVEL IND)	R289 (CH-1) R290 (CH-2)	• E-E • Input: External • Level Meter: Audio Level • 1 kHz, – 8 dBs	1) Supply 1 kHz – 8 dBs signals to the audio inputs (both channels). 2) Set the AUDIO LIMITER switch to OFF. 3) In the E-E mode, adjust the front panel Hi-Fi REC LEVEL controls for – 6 ± 0.5 dBs audio output levels. 4) Adjust R289 (CH-1) and R290 (CH-2) for 0 dB indication on the level meters.

2.8 TUNER/IF CIRCUIT

Note: Unless otherwise noted, test and adjustment points are located on the TUNER/IF board.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
Equipment required. - Oscilloscope - IF sweep signal generator with suitable markers (PIF, SIF, etc.) - DC power supplies — For power bias (12.0 V) for IF AGC bias (approx. 5 V variable) - Sweeper probe (seep signal supply cable) as shown below.					
 Fig. 2-8-1					
1.	VCO E/EG 38.9MHz EK 39.5MHz	IC1 pin 28	T2	- Sweep - Generator	- Use the probe shown in the figure (for IF adjustment) and connect IF sweep signal to the SAW 1 input terminal. - Apply DC 4.5 V to pin 6 of IC1 (IF AGC). Connect oscilloscope to pin 28 (VIDEO DET OUT) and adjust T2 to align the waveform with the frequency marker indicated below. Note: Sweep generator output level is 70 dB μ/75 Ω.  Fig. 2-8-2
2.	Front End IF E/EG 38.15MHz EK 39.5MHz	U/V Tuner (Inside the tuner unit)	IF Coil	- Sweep - Generator	- Use the IF adjustment probe to connect the IF sweep signal to the front end (U/V TUNER) test point (TP). - Use the IF adjustment probe to connect the SAW 1 input terminal with the IF detector. - Adjust the IF core of the front end for maximum frequency.
3	FTZ Trap E/EG only	28 pin of IC1	T1	Colour Bar	- Supply a 32.4 MHz with 400 Hz AM modulation signal to the U/V tuner TP. - Connect oscilloscope to pin 28 of IC1 and adjust the output side core of T1 for minimum level.

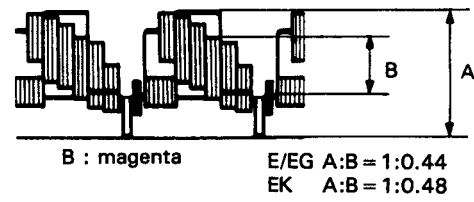
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
4.	RF AGC	IF terminal	R11	• Colour Bar	1. Receive a colour bar signal and connect oscilloscope to the front end IF terminal. 2. Adjust R11 for maximum level. Then again turn R11 to reduce the level by 10 dB.
5.	VPS Y Level (E/EG only)	CN3-pin 1 (VPS OUT)	R16	• Modulated signal	1. Receive an 87.5% modulated signal. Adjust R16 to obtain a maximum Y level (including sync) of 2.0 Vp-p from pin 1 (VPS OUT) of CN3.
6	Colour Level	CN2-pin 3 (VIDEO OUT)	R42	• Colour Bar	1. Receive a colour bar signal. With Y level taken as 100%, adjust R42 for a magenta level of 48% at pin 3 (VIDEO OUT) of CN2.  B : magenta E/EG A:B = 1:0.44 EK A:B = 1:0.48

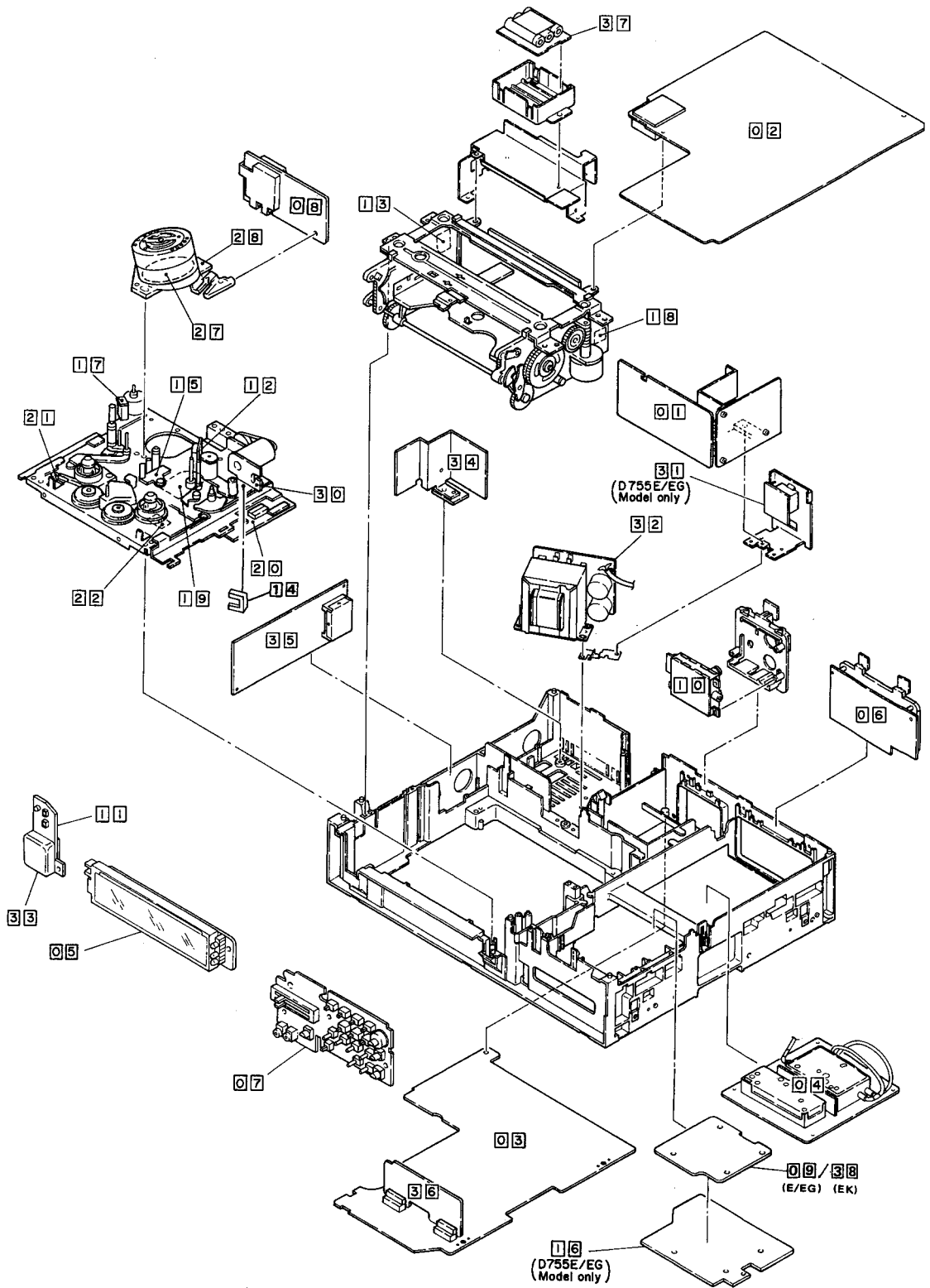
Fig. 2-8-3

Nr.	Einstellung	Meßpunkt	Einstellpunkt	Betriebsart Eing.-Signal	Einstellschritte
4	RF AGC	IF-Klemme	R11	• Farbbalken	1. Ein Farbbalkensignal empfangen und das Oszilloskop an die IF-Klemme des Tuners anschließen. 2. R11 auf Maximumpegel einstellen. Dann erneut R11 drehen, um den Pegel um 10 dB zu senken.
5	VPS Y Pegel	CN3, Pin 1 (VPS OUT)	R16	• Moduliertes Signal	1. Ein 87,5% moduliertes Signal empfangen. R16 so einstellen, daß ein maximaler Y-Pegel (einschließliche Sync) vpm 2,0 Vs-s von Pin 1 (VPS OUT) von CN3 erhalten wird.
6	Farbpegel	CN4, Pin 1 (VIDEO OUT)	R42	• Farbbalken	1. Ein Farbbalkensignal empfangen. Den Y-Pegel als 100% nehmen und R42 auf einen Magenta-Pegel von 48% an Pin 1 (VIDEO OUT) von CN4 einstellen. B: Magenta A:B = 1:0,44 Abb. 2-8-3

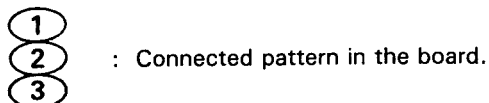
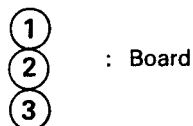
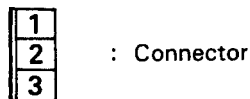
SECTION 3 CHARTS AND DIAGRAMS

3.1 CIRCUIT BOARD LOCATIONS

No.	PWB NAME
38	REMAIN (EK)
37	BACK UP
36	JUNCTION
35	PRE/REC
34	POWER REG (2)
33	IFR
32	POWER TRANSFORMER
31	OUTLET (E/EG ONLY)
30	MODE MOTOR
29	
28	DRUM MOTOR
27	DRUM FG
26	
25	
24	
23	
22	TAKE UP SENSOR
21	SUPPLY SENSOR
20	DECK TERMINAL
19	CAPSTAN MOTOR
18	CASSETTE HOUSING
17	FE HEAD
16	DEMODO (E/EG ONLY)
15	CASSETTE LED
14	MODE SENSOR
13	END SENSOR
12	AUDIO/CONTROL HEAD
11	POWER SW/IFR
10	RF CONV/MIXER
09	VPS/REMAIN (E/EG)
08	PRE/MDA
07	SWITCH
06	TERMINAL
05	DISPLAY
04	TUNER/IF
03	T/M/S (1)
02	V/A/F
01	POWER REG (1)



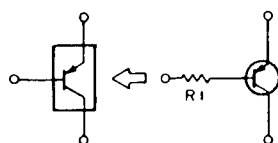
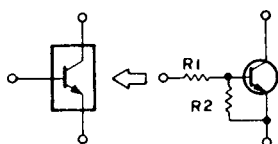
1. Connections



2. Indications

COUNT UP : Active only at high.
COUNT DOWN : Active only at low.

3. Digital transistor



DTA114T T mark only

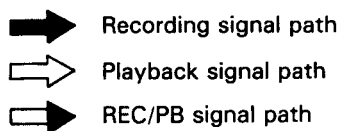
Note:

The digital transistor includes built in resistors.
 It features small size and high reliability.
 Both PNP and NPN types are available.

Uses:

Inverter, Interface, driver circuits.

4. Signal flow in the schematic



5. Schematic diagram values

Unless otherwise specified,

1. All resistance values are in ohms, 1/6 W, 1/8 W, (refer to parts list).
2. All capacitance values are in μF , (P;PF).
3. All inductance values are in μH , (m;mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parentheses.
6. Waveforms (VIDEO System) are measured with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured with 1 kHz (-8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded () parts are critical for safety.
 Replace only with specified parts numbers.

A	AC	: Alternating Current
	ACC	: Automatic Color Control
	A/CTL	: Audio/Control
	ADC	: Analog to Digital Converter
	ADD	: Adder
	ADJ	: Adjustment
	A DUB	: Audio Dubbing
	AE	: Audio Erase
	AEF	: Automatic Editing Function
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	AH	: Audio Head
	AHD	: Audio High-Density Disk
	AL	: After Loading
	ALC	: Automatic Light Compensation
		Automatic Level Control
	ALM	: Alarm
	ALU	: Arithmetic Logic Unit
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Pedestal Control
		Automatic Phase Control
	APL	: Average Picture Level
	A/S/M	: Audio/Servo/Mechacon
	ASS'Y	: Assembly
	ATT	: Attenuator
	AUD	: Audio
	AUTO	: Automatic
	AUX	: Auxiliary

B	B	: Base
	BAL	: Balance
	BATT	: Battery
	BBD	: Bucket Brigade Device
	BCD	: Binary Coded Decimal
	BEG	: Beginning
	BFP	: Burst Flag Pulse
	BIT	: Binary Digit
	BLK	: Black, Blanking
	BLU	: Blue
	BNC	: Bayonet Connector
	BOT	: Beginning of Tape
	BPF	: Bandpass Filter
	BRK	: Brake
	BRN	: Brown
	BRT	: Brightness
	BT	: Band Tuning
	BUFF	: Buffer
	BW or B/W	: Black and White

C	: Capacitance, Collector, Color
CAL	: Calibration
CAP	: Capstan, Capacitor
CAR	: Carrier
CARR	: Carrier
CASS	: Cassette
CC	: Cassette Compartment
CCD	: Charge Coupled Device
CCT	: Circuit
CdS	: Cadmium Sulphide
CD	: Count Down
CE	: Chip Enable
CF	: Ceramic Filter, Color Frame
CH	: Channel
CHG	: Charge
CHROMA	: Chrominance
CLK	: Clock
CLR	: Clear
CMD	: Command
CMOS	: Complementary Metal Oxide Semiconductor
CNT	: Count, Counter
COL	: Color
COM	: Common
COMB	: Combination Comb Filter

COMP	: Comparator
	Composite
	Compensation
CONN	: Connector
CONV	: Converter
CP	: Circuit Protector
	Clamp Pulse
CPC	: Capstan Phase Control
CPU	: Central Processing Unit
CTC	: Crosstalk Cancel
CTL	: Control

D	:	Drum, Digital, Diode, Drain
DAC	:	Digital to Analog Converter
dB	:	Decibel
DC	:	Direct Current
DD	:	Direct Drive
DEC	:	Decoder
DEM0D	:	Demodulator
DEM0X	:	Demultiplexer
DET	:	Detector
DEV	:	Deviation
DFRS	:	Drum Free Running Stop
DG	:	Differential Gain
DIF	:	Differential
DISCR	:	Discriminator
DL	:	Delay Line
DOC	:	Dropout Compensator
DOD	:	Drop Out Detector
DP	:	Differential Phase
DPC	:	Drum Phase Control
DYAC	:	Dynamic Aperture Control

E	:	Edit, Emitter
EDP	:	Electronic Data Processing
E-E	:	Electric to Electric
EF	:	Emitter-Follower
EMP	:	Emphasis
EN	:	Enable
ENC	:	Encoder
ENV	:	Envelope
EOT	:	End of Tape
EP	:	Extended Play
EQ	:	Equalizer
ES	:	Electronic Switch
ESNS	:	End Sensor
EXP	:	Expander
EXT	:	External

F	F	: Farad, Fuse
	F ADV	: Frame Advance
	FDP	: Fluorescent Display Panel
	FE	: Full Erase
	FET	: Field Effect Transistor
	FF	: Fast Forward Flipflop
	FG	: Frequency Generator
	FM	: Frequency Modulation
	FMA	: FM Audio
	FR	: Full Recording, Frame, Fusible Resistor
	FREQ	: Frequency
	F-V CONV	: Frequency to Voltage Converter
	FWD	: Forward
	FWD S	: Forward Search

G G : Green, Gate, Grid
 GEN : Generator
 GND : Ground
 GRN : Green
 GRY : Gray

H	H	: High, Henry, Hour
	HBF	: Horizontal Burst Flag
	HD	: Horizontal Drive
	HG	: Hall Generator
	HPF	: Highpass Filter
	Hz	: Herz

I	IC	: Integrated Circuit
	ID	: Identification (Pulse)
	IF	: Intermediate Frequency
	IFR	: Infrared
	IFT	: Intermediate Frequency Transformer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter
	I/O	: Input/Output
	IR	: Infrared

L	L	: Low, Left
	LCD	: Liquid Crystal Display
	LED	: Light Emitting Diode
	LIM	: Limiter
	LIN	: Linearity
	LOAD	: Loading (Cassette)
	LP	: Long Play
	LPF	: Lowpass Filter
	LSB	: Lower Sideband

M	M	: Motor, Mega
	MAX	: Maximum
	MDA	: Motor Drive Amplifier
	MECHACON	: Mechanism Control
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer, Mixing
	MMV	: Monostable Multivibrator
	MNOS	: Metal Nitride Oxide Semiconductor
	MOD	: Modulation, Modulator
	MODEM	: Modulator-Demodulator
	MON	: Monitor
	MOS	: Metal Oxide Semiconductor
	MPX	: Multiplexer, Multiplex
	MS	: Mode Select
	MUT	: Muting

N	NAND	: Not-And
	NC	: Not Connected, Normally Closed
	NFB	: Negative Feedback
	NLN	: Non-Linear
	NO	: Normally Open
	NOR	: Normal, Not-Or
	NR	: Noise Reduction

- O** OP : Operation
- OPAMP : Operational Amplifier
- ORN : Orange
- OSC : Oscillator

P	PB	: Playback
	PC	: Photocoupler, Pulse Counter
	PCM	: Pulse Code Modulation
	PG	: Pulse Generator
	PGM	: Program
	PI	: Photo Interrupter
	PIF	: Picture Intermediate Frequency
	PLA	: Programmable Logic Array
	PLL	: Phase Locked Loop
	POS	: Position
	p-p	: Peak-to-Peak
	PR	: Pinch Roller
	PREAMP	: Preamplifier
	PRL	: Preroll
	P/S	: Pause/Still
	PSC	: Pulse Swallowing Control
	PU	: Pickup
	PUT	: Programmable Unijunction Transistor
	PWB	: Printed Wiring Board
	PWM	: Pulse Width Modulation
	PWR	: Power

Q Q : Quality Factor

R	R	: Red, Right
	RA	: Resistor Array
	RAM	: Random Access Memory
	REC	: Recording
	REF	: Reference
	REG	: Regulated, Regulator
	REM	: Remote

REMOCON	: Remote Control (Unit)
REV	: Reverse
REV S	: Reverse Search
REW	: Rewind
RF	: Radio Frequency
ROM	: Read Only Memory
R/P	: Record/Playback
RPT	: Repeat
RS FF	: RS Flipflop
RST	: Reset
RT	: Rotary Transformer
RUN	: Running
RY	: Relay

S	SAW	: Sawtooth, Surface Acoustic Wave
	SC	: Subcarrier, Simulcast
	SCH	: Search
	SEL	: Select, Selector
	SENS	: Sensor
	SEP	: Separator
	SF	: Source Follower
	SFF	: Short Fast Forward
	SIF	: Sound Intermediate Frequency
	SN	: Signal to Noise Ratio
	SOL	: Solenoid
	SOS	: Sound on Sound
	SP	: Standard Play
	SR	: Supply Reel
	SREV	: Search Reverse
	SREW	: Short Rewind
	S/S	: Slow/Still
	SSG	: Sync Signal Generator
	SSNS	: Start Sensor
	STD	: Strobe Data, Standard
	SUP	: Supply
	SW	: Switch
	SWD	: Switched
	SYNC	: Synchronization
	SYSCON	: System Control

T	TAL	: Tally
	TBC	: Time Base Corrector
	TC	: Tension Control, Time Code
	TEN	: Tension
	TF	: Thermal Fuse
	TIM	: Timing
	TK	: Tracking
	TNR	: Tuner
	TP	: Test Point
	TPZD	: Trapezoid
	TR	: Transistor, Trimmer
	TRANS	: Transformer
	T/T	: Tuner/Timer
	TU	: Take-up

U UL : Unloading
 UNREG : Unregulated
 UNSW : Unswitched

V	V	: Vertical, Volt
	VACT	: Video Action
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VIF	: Video Intermediate Frequency
	VLT	: Violet
	VR	: Variable Resistor
	VS	: Video and Sync
	VSCH	: Variable Search
	V/T	: Video/Television
	V/U	: VHF/UHF
	VXO	: Variable Crystal Oscillator

W W : Watt
 WARN : Warning
 W & D : White and Dark
 WHT : White
 WV : Working Voltage

X XTAL : Crystal

Y Y : Luminance
YEL : Yellow

3.3 MAIN TYPES OF ACTIVE AND PACKAGE CIRCUITS

3.3.1 Integrated Circuit

	NAME	L		NAME	L		NAME	L		NAME	L	
A	AN1358	2A	I	HD614080SA05	1C		M5278L56	1H		TC40H074P	1A	
	AN3310K	1A		HD614080SA19	1C		M54644L	4H		TC40H386P	1A	
	AN3310S	4B		HD6305XDA55F	2I		M54644AL	4H		TC40H393P	1A	
	AN3592K	3B			M54664BL		4H	TC4538BP		1A		
	AN3926	1A			M58653P		4A	TDA3800GS		4A		
	AN3926K	1A		L	IC-PST523E-2		1H	M58655P		4B	TL066CP	1C
	AN3930K	1A			IC-PST523H-2		1H	MB84066BM		1A	TL8703P	1A
	AN3991K	1A			IR2339		1C	MB8854M-612L		1C	TMS1035NE	1A
	AN3994K	1A			IR3702		1C	MC14517BCP			TP4030BN	4A
	AN6291	1A			IR3F01N		5B	MC5641		4F		
AN6299K	1A	IR9393	3C									
AN6299NK					MN1219	1A	UPC1042C	1A				
AN6328	1A				MN1220	1A	UPC1480CA	4A				
AN6392	1F				MN1250BJA	4A	UPC1481CA	4A				
AN6558S	5B				MN1250BJC	4A	UPC319C	4A				
AN6671K	1B			LA7710		MSC1124BRS	4A	UPC324C	1A			
				LA7910	1F							
B	BA225	5C		LA7913	1A	N	MSC1124RS	4A	U	UPC324G2	4B	
	BA236	2F		LB1649	2B		MSM5258RS	3C		UPC339C	1A	
	BA255	2A		LM324N	4A		MSM6967RS	5B		UPC339G2	4B	
	BA3707	2F		LM339N	4A		MSM6989RS	5B		UPC358C	2A	
	BA618			LM358P	3C					UPC393C	3C	
	BA6109U3	2E		LM393N						UPC451G2	4B	
	BA6238	3D		LM393P	3C					UPC4558C	2A	
	BA6238AU3	2E								UPD1511ACU-604	1A	
	BA6305LN	2F								UPD1511ACU-613	1A	
	BA7007	2F								UPD1511ACU-614	1A	
BA7021	1F	M	M4001BP	1A	P	PU11115A	2G		UPD1511ACU-615	3B		
BA7057	4A		M4011BP	4A		PU11116A			UPD1709CT	1A		
BA7233	4A		M4013BP	4A		PU11117A-1G	1G		UPD1709CT-743	4A		
BA7750AL	3E		M4030BP	4A		PU22030A	2G		UPD1716DT-517	1A		
BQ-050	5E		M4066BP	1A		PU22031A	2G		UPD4001BC	4A		
BU2710	4B		M47029S	3B		PU22046A	1G		UPD4011BC	4A		
BU2710SA	4A		M50115AP	4A		PU22077A	1G		UPD4013BC	1A		
BU2710S	4A		M50161-391S			PU22106A	1I		UPD4013BG-T1	1A		
BU4011B	4A		M50161-394SP	3B		PU22198A	2G		UPD4013C	1A		
BU4013B	1A		M50440-391SP			PU22198-2A	2G		UPD4030BC	1A		
BU4013BG	4B	M50452-021P	1A	PU22199A	2G	UPD4053BC	1A					
BU4013BF	4B	M50452-024P	1A	PU22280A	2G	UPD4066BC	1A					
BU4030B	4A	M50730-601SP	1A	PU22282A		UPD7507SC-086	1A					
BU4066B	4A	M50730-610SP	1A	PU33298A	2G	UPD75075SC-209	1A					
BX6268	2D	M50731-607SP				UPD7516HCW-202	1A					
BX6269	2D	M50731-608SP	4A	R	RP5C15	1A		UPD7519H	1A			
BX7221AW	5A	M50731-612SP	4A		S	S-8053HLB		1H	UPD75208CW	1A		
		M50742-604SP	4A			S-81250HG		2H	UPD75208CW-025	3B		
		M50742-610SP	4A			STK5481		4G	UPD75208CW-030	1A		
		M50742-622SP	4B						UPD7538AC-016	1A		
		M50766-603P	1A			T		TA7133P	4E	UPD7538BACU-201	1B	
		M50965-603SP	4A					TA7347	3E	UPD7538ACU-205	1A	
		M50965-604SP	4A					TA7348P	1E	UPD7538C	4D	
		M50965-605SP	4A					TA7361AP	3E			
		M50965-613SP						TA7361P	1E			
		M51316BP	1A	TA7365P			3F	VC2022A	1A			
		M51365SP	1A	TA7374P	3E		VC2022B	1A				
		M51374ASP		TA78L005AP	1H		VC2022D					
		M51458P	1A	TA78L010AP	1H		VC2023B					
		M51645P	4A	TA8400P	1A		VC2024A	2D				
		M51722P	3B		TC4001BP	1A	V	10VT24	2D			
		M51795FD	4B		TC4010BP	1A		10VT12				
		M51795P	4A		TC4013BP	4A		5VT12	2D			
		M51796P	4A		TC4030BP	1A		7VT09	2D			
		M5187P	1A		TC4066BP	1A		7VT12	4C			
		M5218P	2A		TC4069UBP	1A		9VT07	2D			
		M5223P	2A		TC4071BP	4D						
		M5224P	4A		TC40H002P	1A						
		M5233P	3C		TC40H020P	1A						
		M5234P	4A									
		M5278L05	1H									

3.3.3 Diode

	NAME	L		NAME	L		NAME	L		NAME	L
D	DA210S	33B		HZS6.8EB2	30D		RD10ES-T1B2	30D		SLH-34YC3F	30A
	DAN201	33B		HZS6.8EB3	30D		RD11EB1	30D		SLH-34YY3F	30A
	DAN202K	30C		HZS7.5EB1	30D		RD11ES-T1B3	30D		SLP-981C-50	30A
	DAN209S	30C		HZS7.5EB2	30D		RD12EB1	30D		SLR-34MC12F	30A
	DAP201	30I		HZS8.2EB2	30D		RD12ES-T1B3	30D		SLR34MT4	30A
	DAP209S	30I		HZT33	30D		RD13EB3	30D		SLR-34VC12F	30A
	D5SB10	33A		HZT33-02	30D		RD13ES-T1B3	30D		SLR-34VC4	30A
							RD24EB2	30D		SLR-932A	30A
E	ERA12-01	30C	L	LTZ-MR15	30B		RD24ESB2	30D	T	SLR-938C	30A
	ERA15-02	30C		LTZ-R15	30B		RD27ES-T1B	30D			
	E452-2	30D		LTZ33-02	30B		RD2.7EB1	30D			
							RD3.0ESB	30D		TLG113A	30A
G	GL-450V	30I	M	MA150	30C		RD3.0ESB2	30D			
				MA151WK	30C		RD3.0ES-T1B2	30D			
				MA154WA	30C		RD3.3EB1	30D		10E2	30C
				MA161	30C		RD33EB1	30D		11DQ04F	30D
H	HP-5FR2	31A		MA162	30C		RD33EB2	30D		11E2	30C
	HZ11B2L	30D		MA165	30C		RD4.3ES-T1B2	30D		1S2473	30C
	HZ12C1	30D		MA27	30C		RD5.1ES	30D		1SS132	30C
	HZ12C1L	30D		MA27TA	30C		RD5.1ES-T1B	30D		1SS133	30C
	HZ12C3L	30D		MA27TB	30D		RD5.1ES-T1B1	30D		1SS99	30C
				MA27WA	31A		RD5.1ES-T1B2	30D		1SV68	30C
	HZ15-2	30D		MC911	30E		RD5.1ES-T1B3	30D		20E2	30C
	HZ24-3L	30D		MC921	30F		RD5.1EB3	30D		31DQ04	30C
	HZ30-2	30D		MC931	30G		RD5.1FB3	30D			
	HZ30-3	30D		MTZ10A	30D		RD5.6EB3	30D			
	HZ4A2	30D		MTZ10B	30D		RD5.6ES-T1B1	30D			
				MTZ12A	30D		RD5.6ES-T1B3	30D			
	HZ5CCL	30D		MTZ12B	30D		RD6.2ES-T1B	30D			
	HZ6B1L	30D		MTZ13B	30D		RD6.2ES-T1B2	30D			
	HZ6B3L	30D		MTZ15A	30D		RD6.8EB2	30D			
	HZ6C1	30D		MTZ5.1B	30D		RD6.8ES-T1B2	30D			
	HZ6C1L	30D		MTZ5.1C	30D		RD6.8ESB2	30D			
				MTZ5.6A	30D		RD7.5EB1	30D			
	HZ6C2	30D		MTZ5.6C	30D		RD7.5EB2	30D			
	HZ6C2L	30D		MTZ6.8B	30D		RD7.5ES-T1B2	30D			
	HZ7A-2	30D		MTZ7.5B	30D		RD8.2EB2	30D			
	HZ7B	30D		MTZ8.2B			RD8.2EB3	30D			
	HZ7B-1L	30D					RD8.2ES-T1B2	30D			
							RD9.1EB2	30D			
	HZ7B2	30D					RD9.1ES-T1B2	30D			
	HZ7C1	30D					RD10ES-T1B2	30D			
	HZ9A3	30D					RD11ES-T1B3	30D			
	HZS10EB1	30D					RD13EB2	30D			
	HZS10JB1	30D					RD15ES-T1B1	30D			
											</

3.3.5 Transistor

	20	21	22	23	24
A					
B					
C					
D					
E					
F					
G					
H					
I					

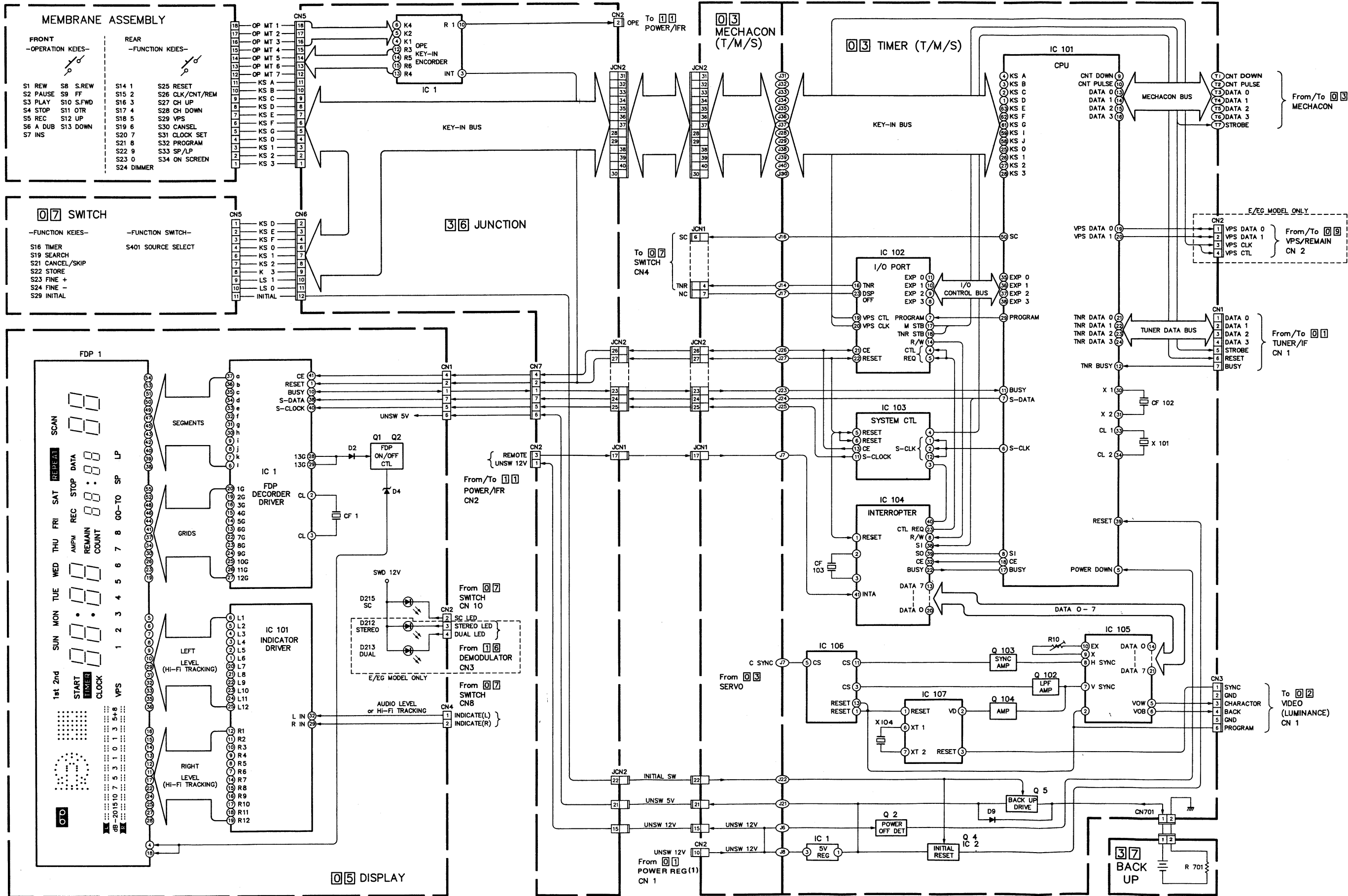
CHART : SHAPE AND PIN-OUT DIAGRAMS, TRANSISTORS.
(REFER TO PAGE 3-4)

3.3.6 Diode

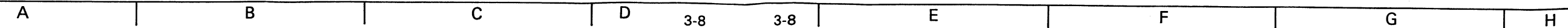
	30	31	32	33	34
A					
B					
C					
D					
E					
F					
G					
H					
I					

CHART : SHAPE AND PIN-OUT DIAGRAMS, DIODES.
(REFER TO PAGE 3-4)

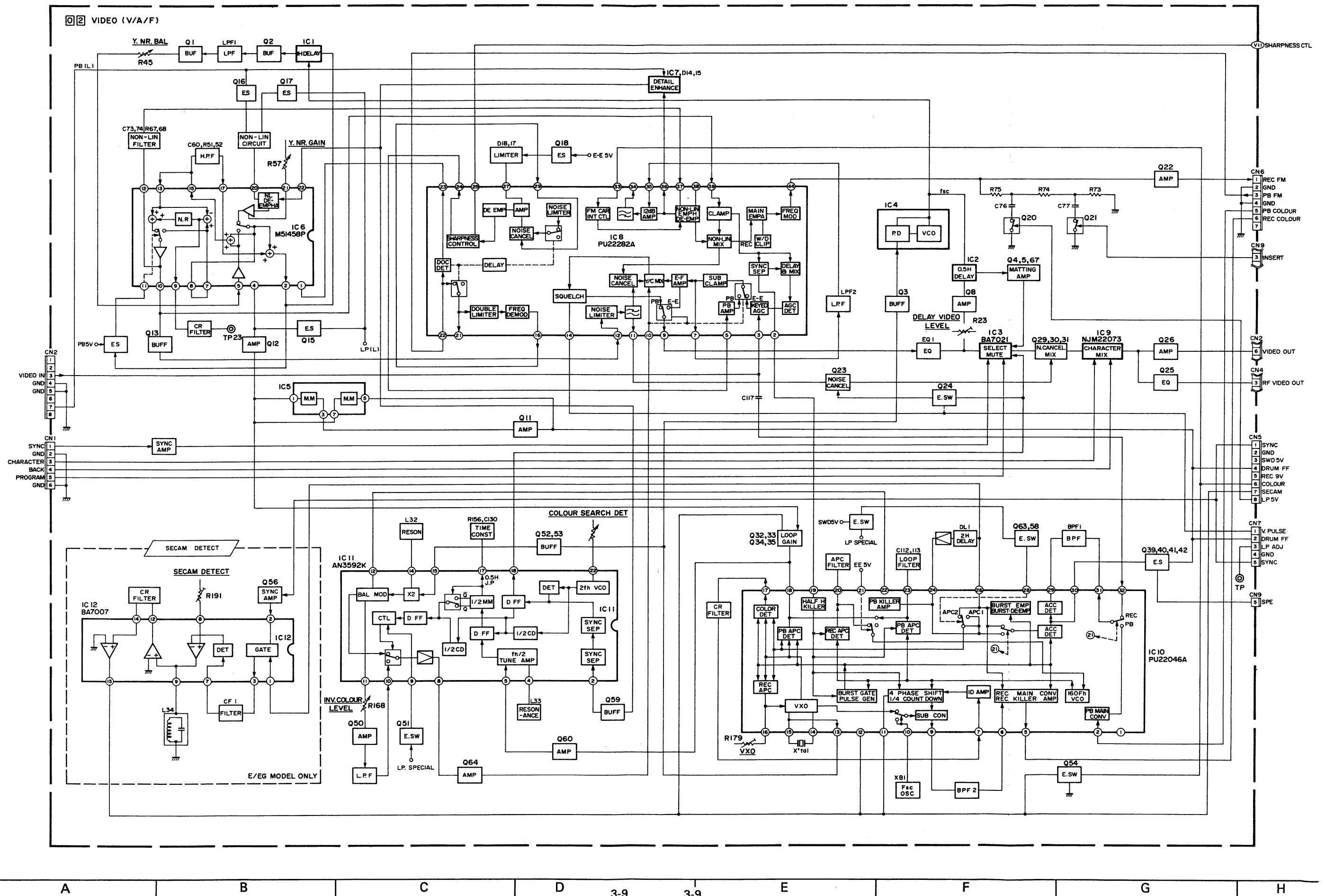
3.4 TIMER DISPLAY BLOCK DIAGRAM



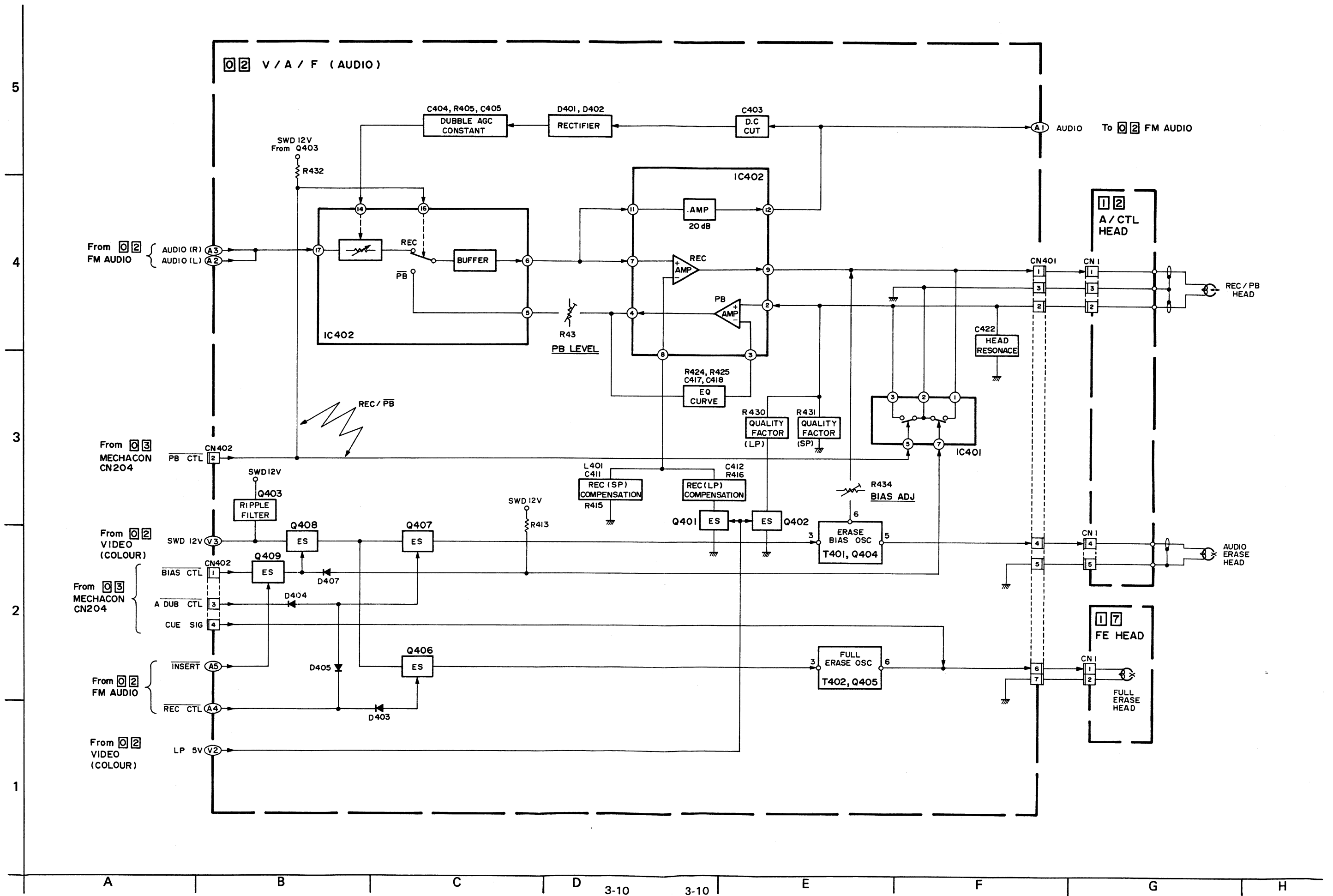
A vertical scale with five horizontal tick marks. The numbers 1, 2, 3, 4, and 5 are placed to the right of the tick marks, increasing from bottom to top.



3.6 VIDEO BLOCK DIAGRAM



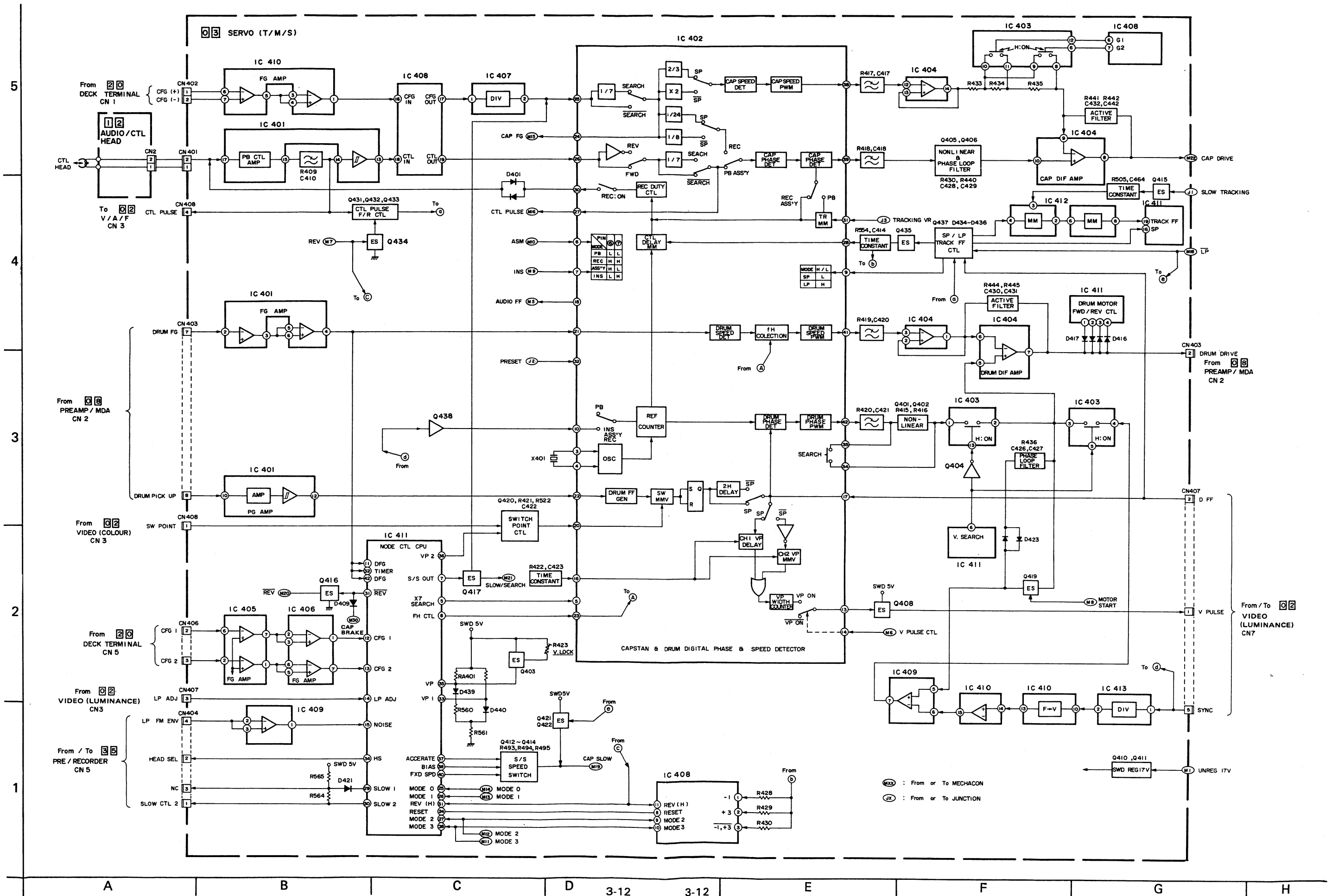
3.7 AUDIO BLOCK DIAGRAM



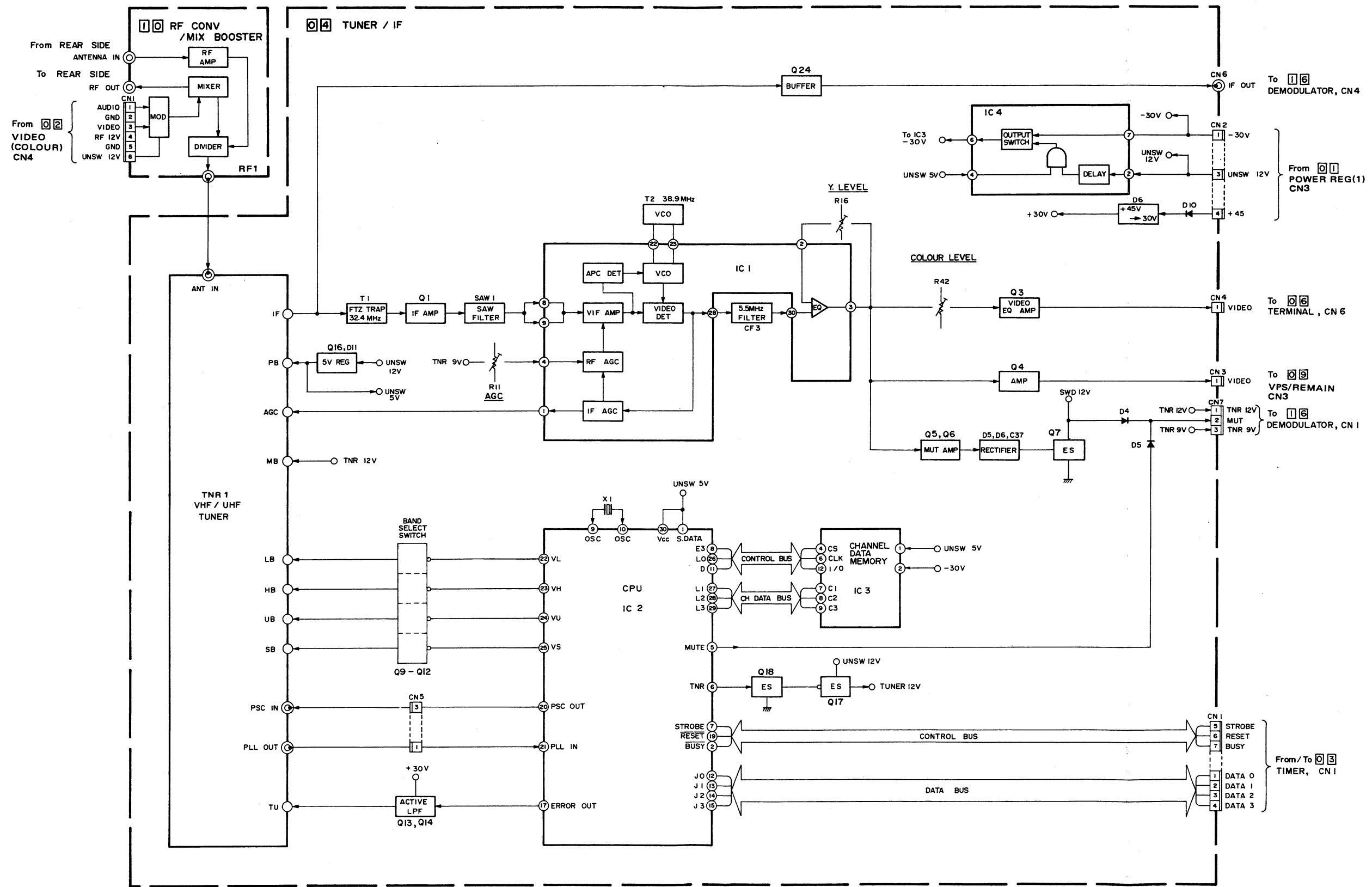
5



3.9 SERVO BLOCK DIAGRAM



3.10 TUNER/IF BLOCK DIAGRAM (E/EG MODEL)



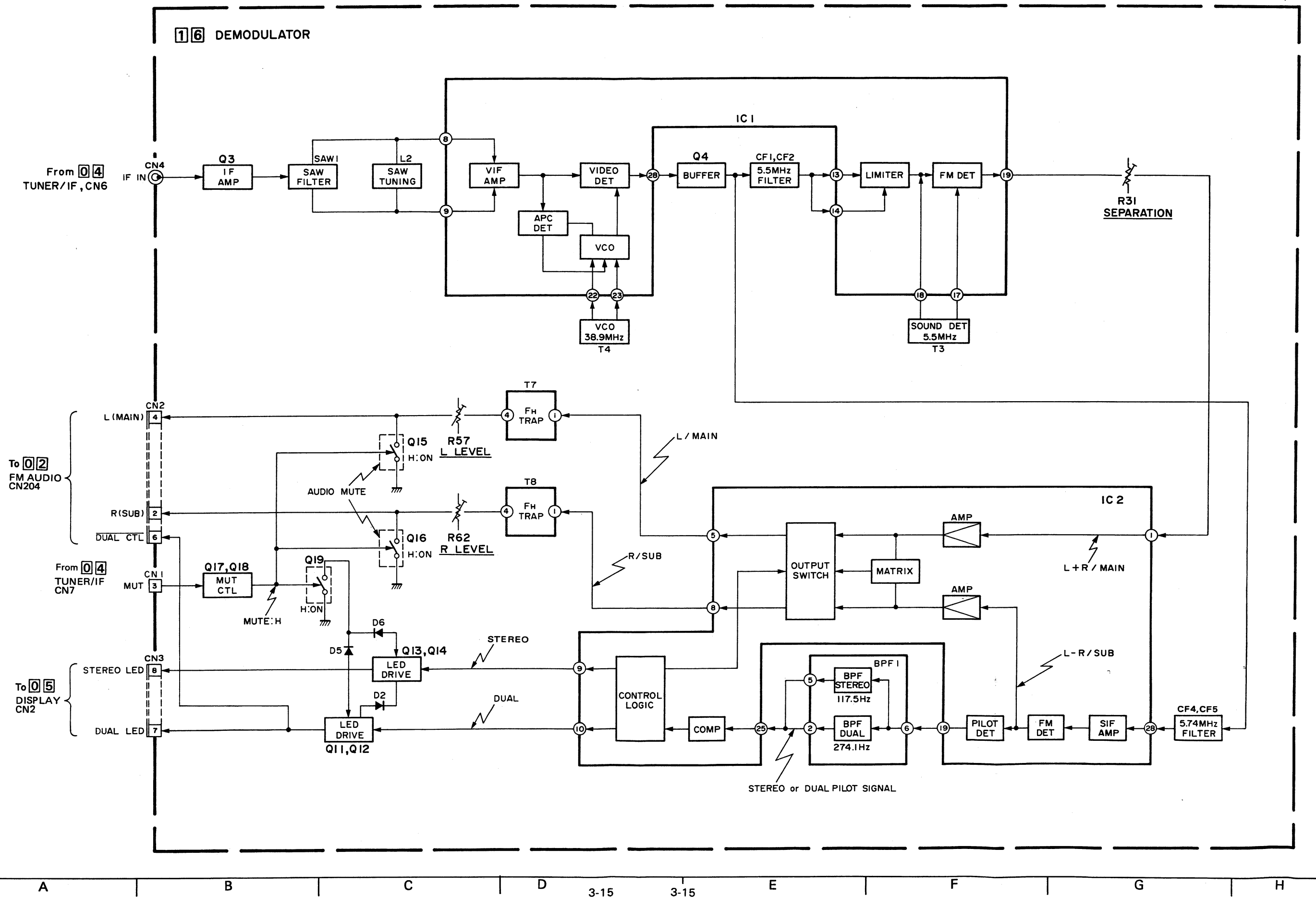
TELEVISION RECEIVER
Schematic Diagram

The diagram is organized into five main functional blocks, each identified by a number in a box:

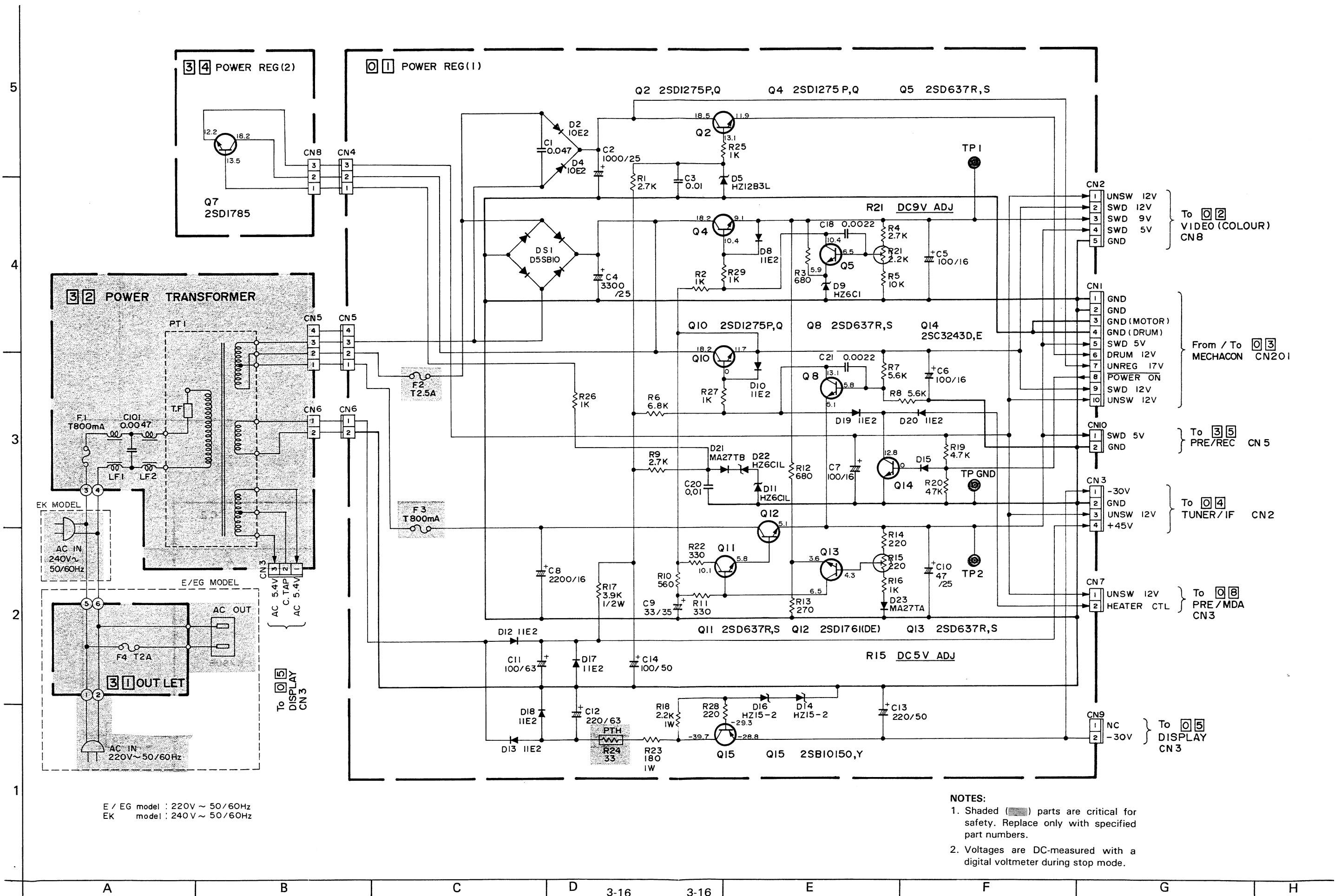
- 1 RF CONV / MIX BOOSTER**: This block handles the initial RF input from the antenna. It includes an RF AMP, a MIXER, and a DIVIDER. It is connected to the antenna via ANT IN and ANT OUT, and to the tuner via RF1.
- 2 TUNER / IF**: This block contains the core tuning and intermediate frequency (IF) processing. It includes an IF AMP, SAW FILTER, VIF AMP, VIDEO DET, RF AGC, IF AGC, and a VCO (39.5 MHz). It is connected to the RF CONV block via RF1 and to the UHF TUNER block via ANT IN.
- 3 UHF TUNER**: This block is responsible for tuning the UHF signal. It includes an ANT IN, a PSC IN, a PLL OUT, and a TU (Tuner Unit). It is connected to the tuner block via ANT IN and to the audio and color level blocks via PSC IN, PLL OUT, and TU.
- 4 AUDIO LEVEL**: This block processes the audio signal. It includes an IC1 (Audio Processor), a MUT SW (Mute Switch), and a Q2 (MUT SW). It is connected to the tuner block via IC1 and to the output via AUDIO.
- 5 COLOUR LEVEL**: This block processes the color signal. It includes an IC1 (Color Processor), a MUT SW (Mute Switch), and a Q3 (VIDEO EQ AMP). It is connected to the tuner block via IC1 and to the output via VIDEO.

The diagram also shows various power supply connections and control signals. The power supply section includes a +30V supply, a +45V supply, and a -30V supply. Control signals include STROBE, RESET, BUSY, and DATA 0, DATA 1, DATA 2, and DATA 3. The diagram is labeled with a grid system (A-H, 1-5) and includes a title block with the text 'TELEVISION RECEIVER' and 'Schematic Diagram'.

3.12 DEMODULATOR BLOCK DIAGRAM (HR-D755E/EG MODEL ONLY)

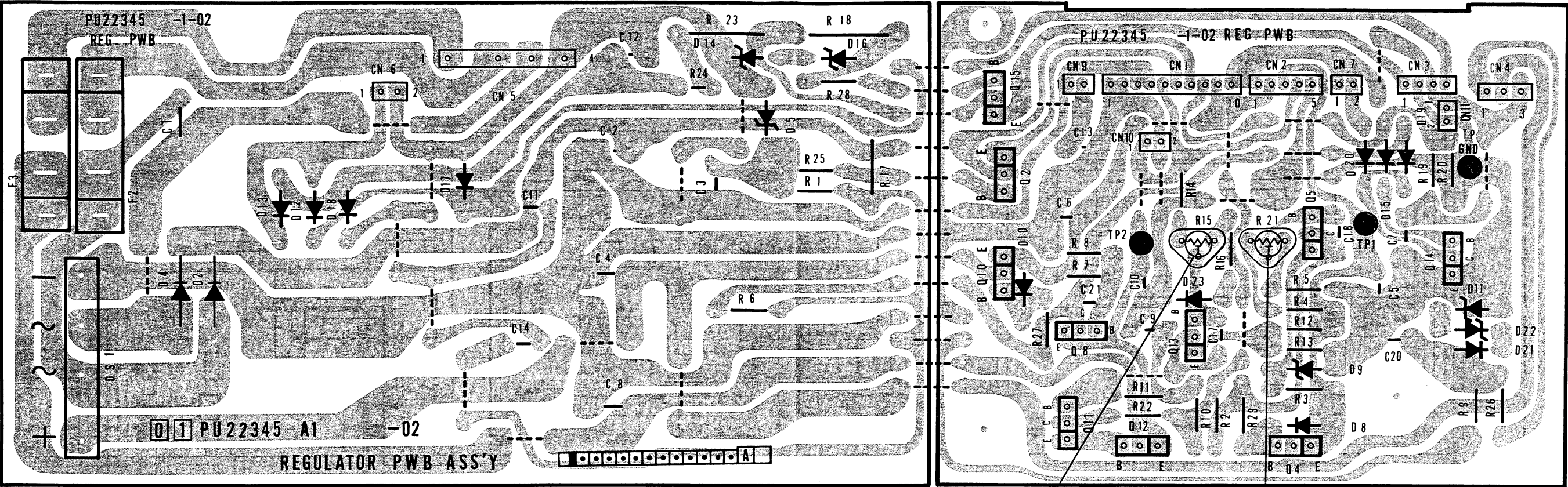


3.13 POWER TRANSFORMER, REGULATOR AND POWER REGULATOR SCHEMATIC DIAGRAMS

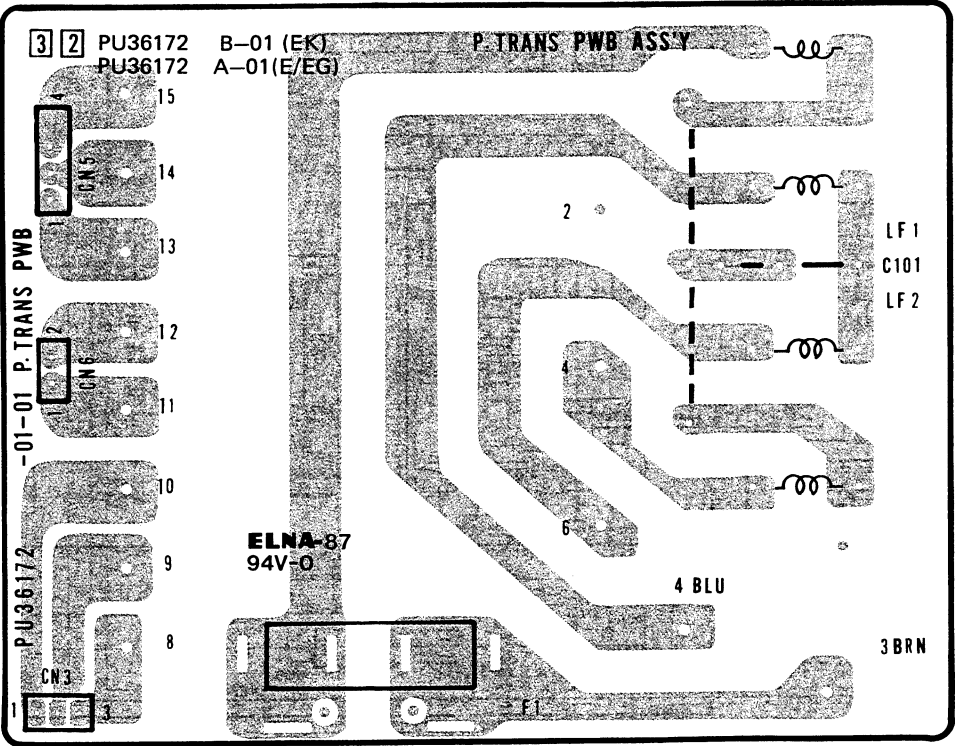


3.14 POWER TRANSFORMER, REGULATOR AND POWER REGULATOR CIRCUIT BOARDS

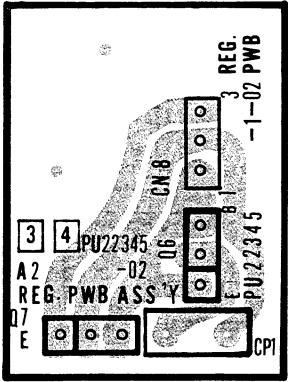
—REGULATOR—



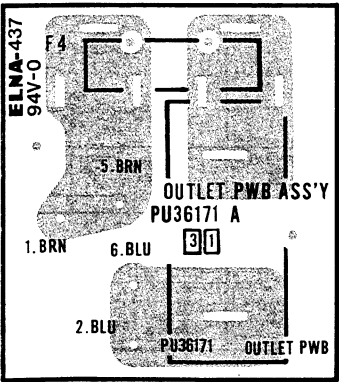
—POWER TRANSFORMER—



—POWER REGULATOR—



— OUTLET —



R15
DC 5V ADJ

R21
DC 9V ADJ

A

B

C

D

3-17

3-17

E

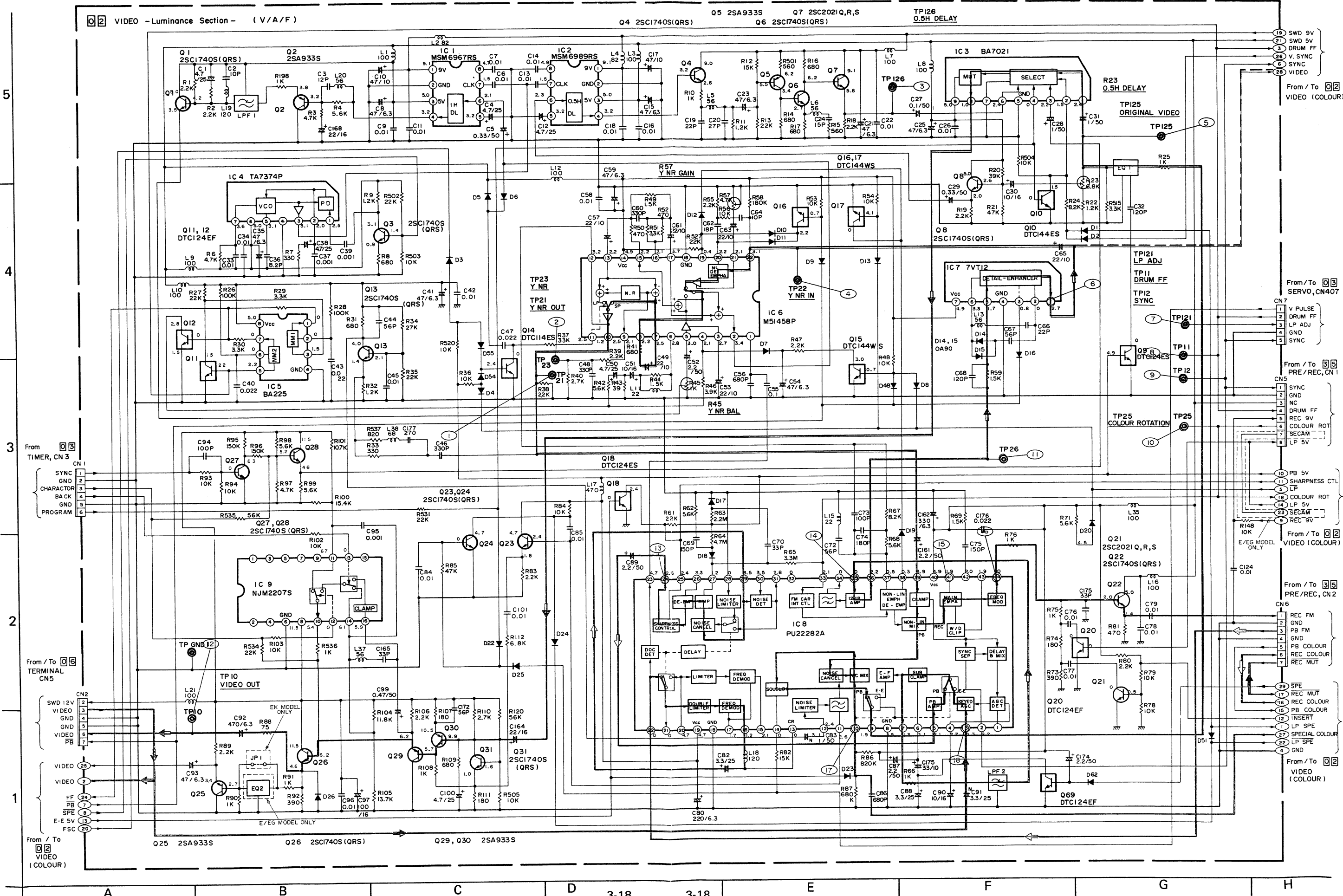
F

G

H

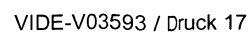
3.15 VIDEO-LUMINANCE SECTION- SCHEMATIC DIAGRAM

- NOTES:
1. Shaded (■) parts are critical for safety. Replace only with specified part numbers.
 2. Voltages are DC-measured with a digital voltmeter during PLAY BACK mode.

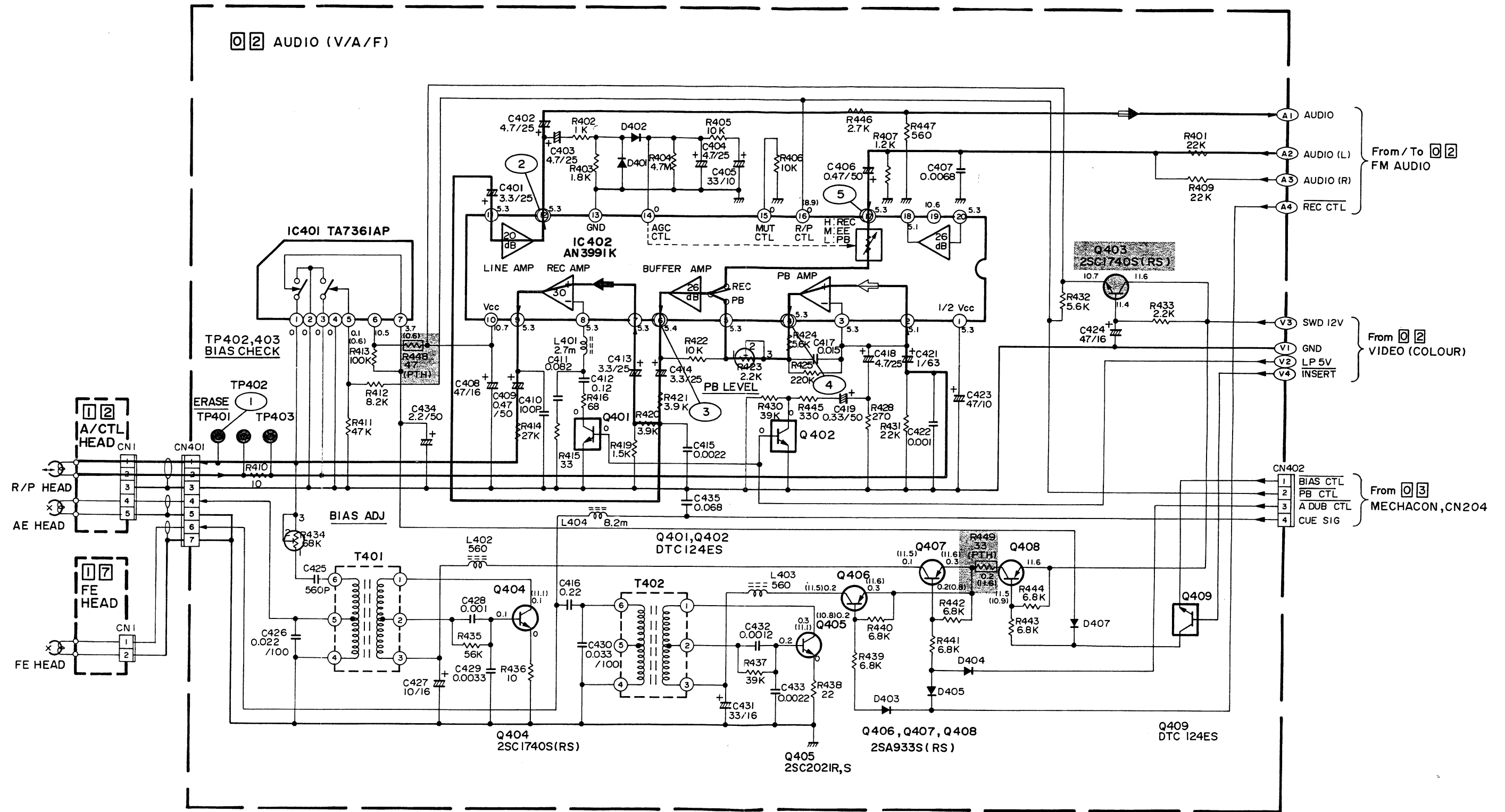


NOTES:

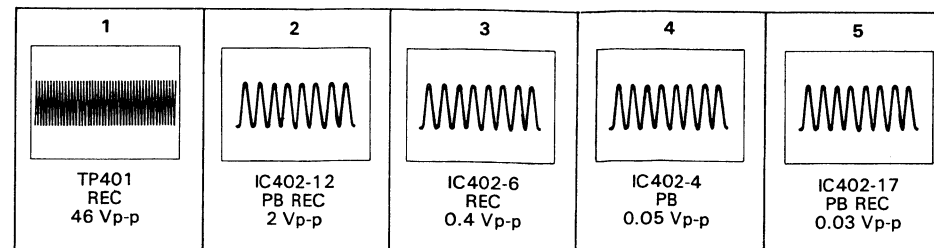
1. Shaded (2020-2021) parts are critical for safety. Replace only with specified part numbers.
2. Voltages are DC-measured with a digital voltmeter during PLAY BACK mode.



3.17 AUDIO SCHEMATIC DIAGRAM

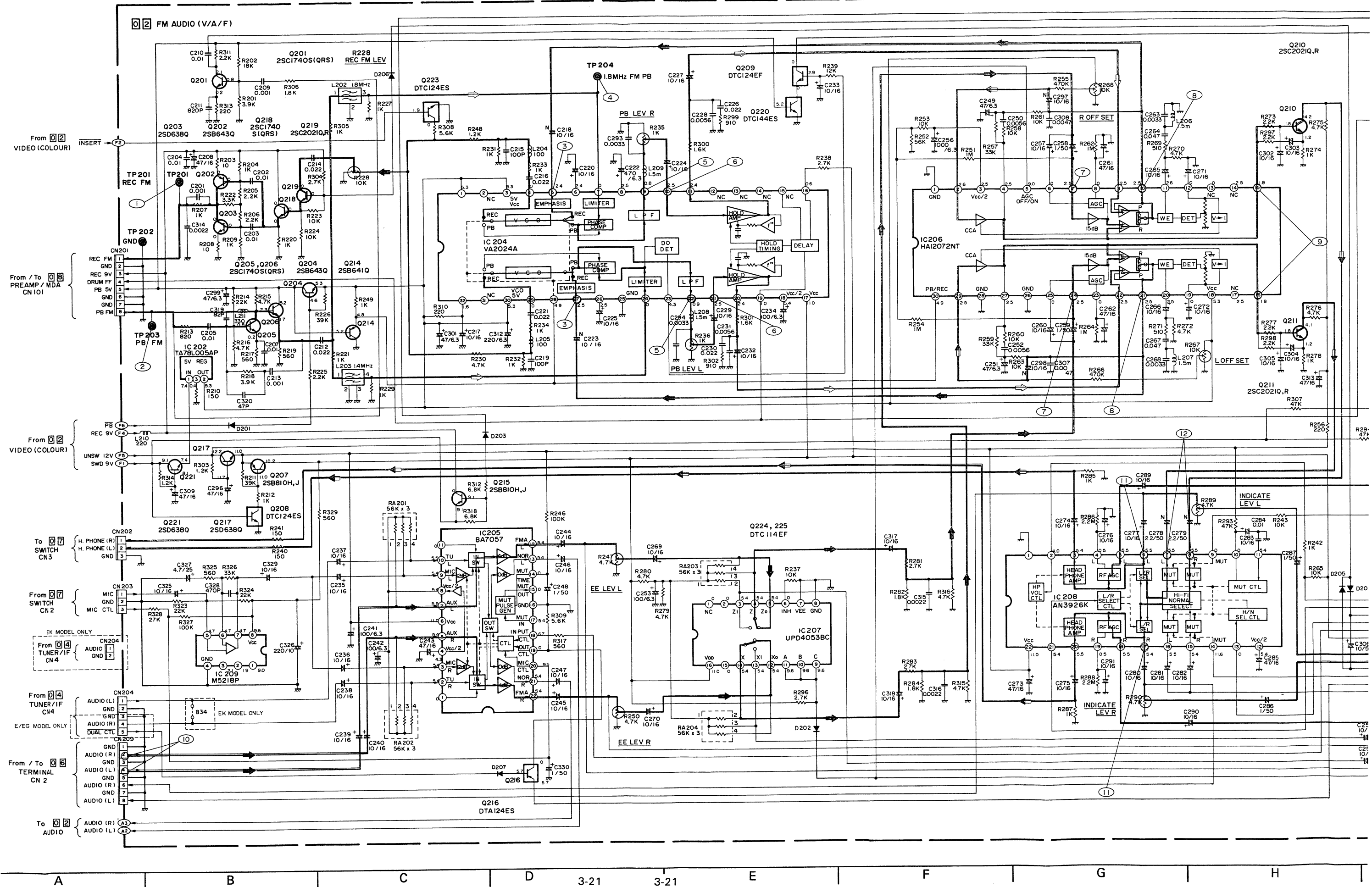


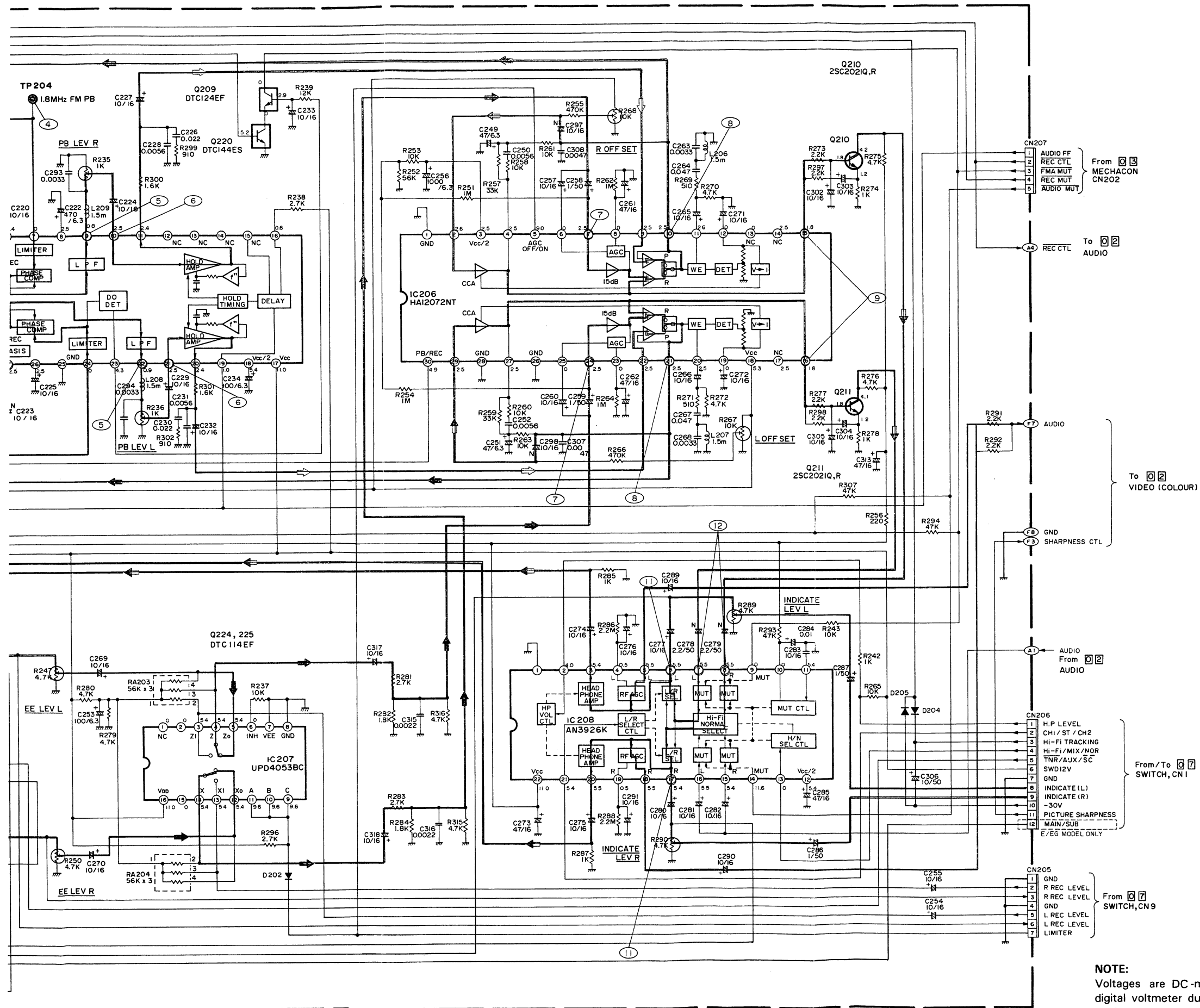
—Waveforms of AUDIO circuit—



NOTE: Shaded () parts are critical for safety. Replace only with specified part numbers.

FM AUDIO SCHEMATIC DIAGRAM



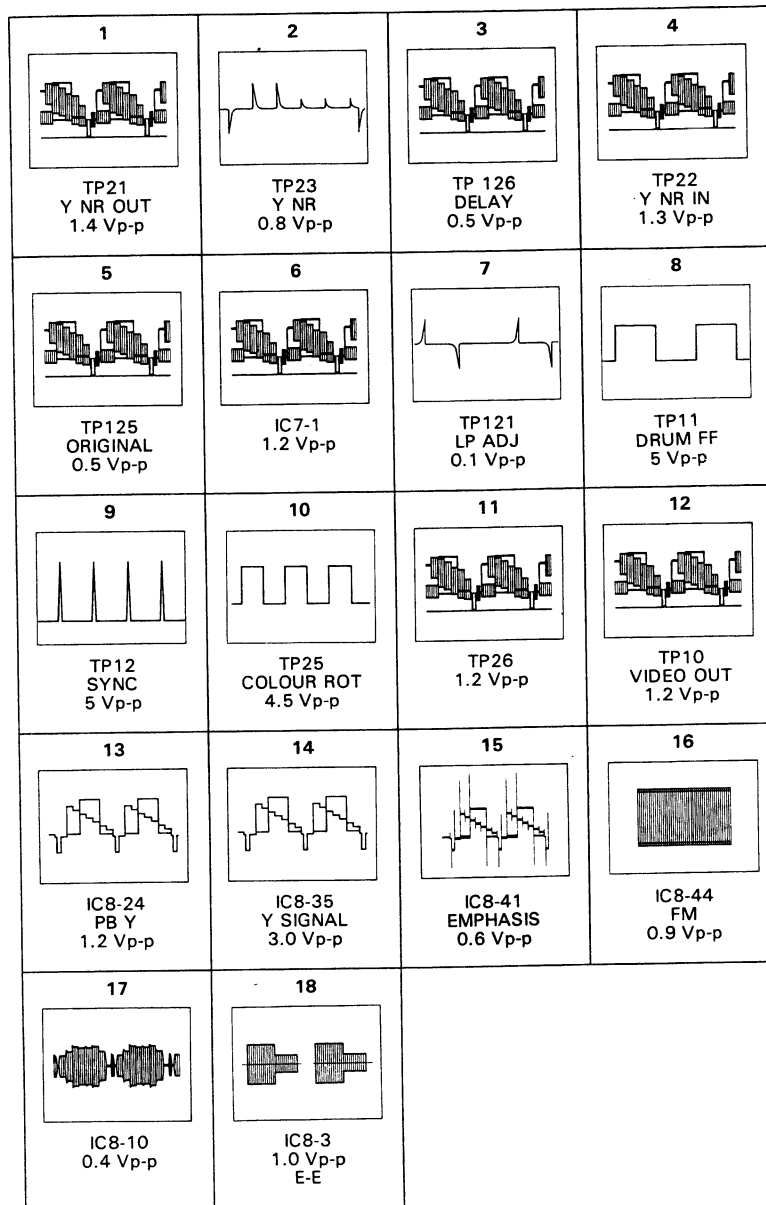


—Waveforms of FM AUDIO CIRCUIT—

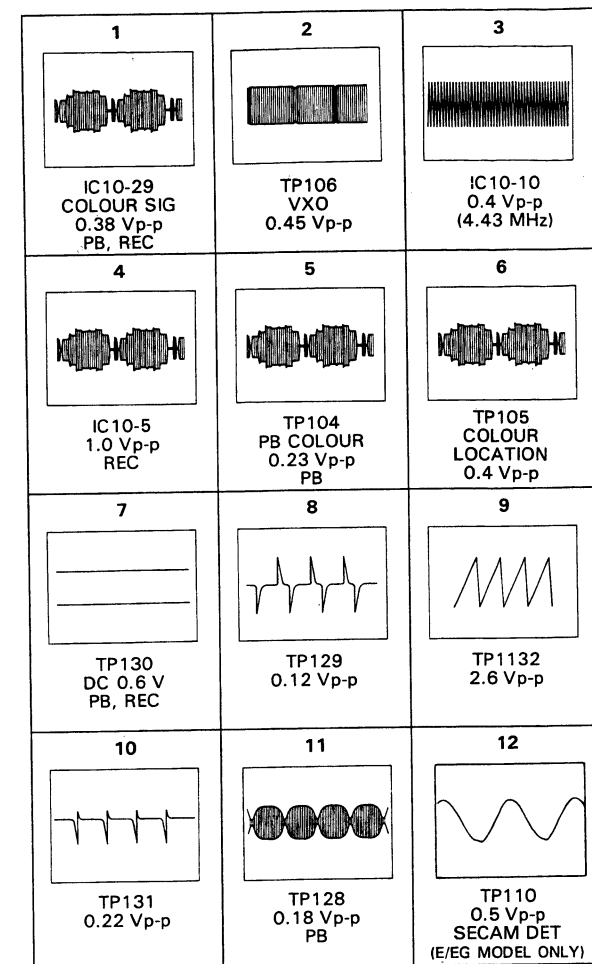
1 TP201 REC 2.1 Vp-p	2 TP203 PB 0.2 Vp-p	3 IC204-5,27 REC 0.42 Vp-p
4 TP204 PB 0.02 Vp-p	5 IC204-9,22 PB 0.3 Vp-p	6 IC204-10,21 PB 0.05 Vp-p
7 IC206-7,24 REC 0.04 Vp-p	8 IC206-10,21 REC 0.4 Vp-p	9 IC206-15,16 REC 0.2 Vp-p
10 CN209-2,4 AUDIO IN 0.2 Vp-p	11 IC208-6,17 REC 1.2 Vp-p	12 IC208-7,8 REC 0.4 Vp-p

NOTE:
Voltages are DC-measured with a digital voltmeter during PLAY BACK mode.

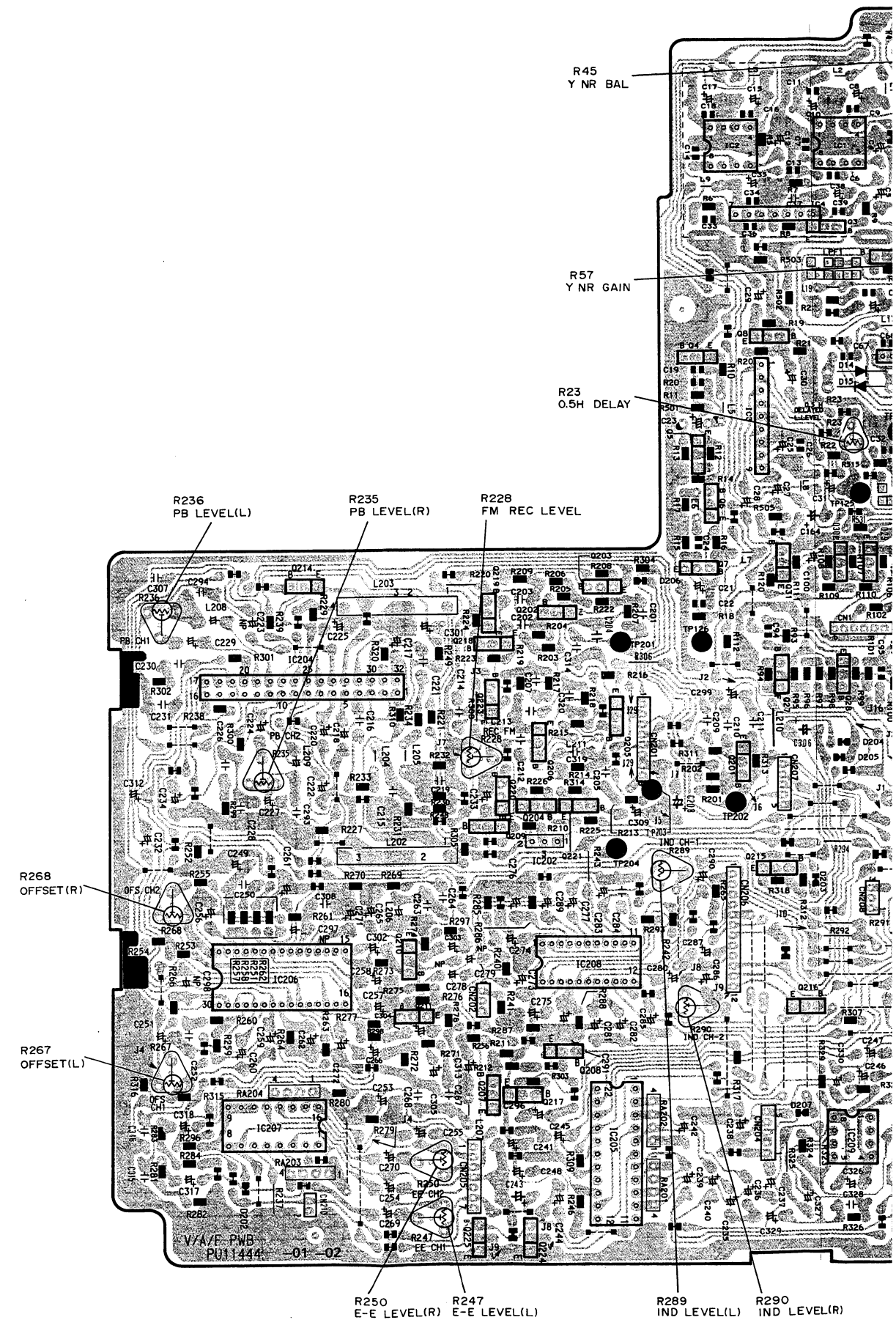
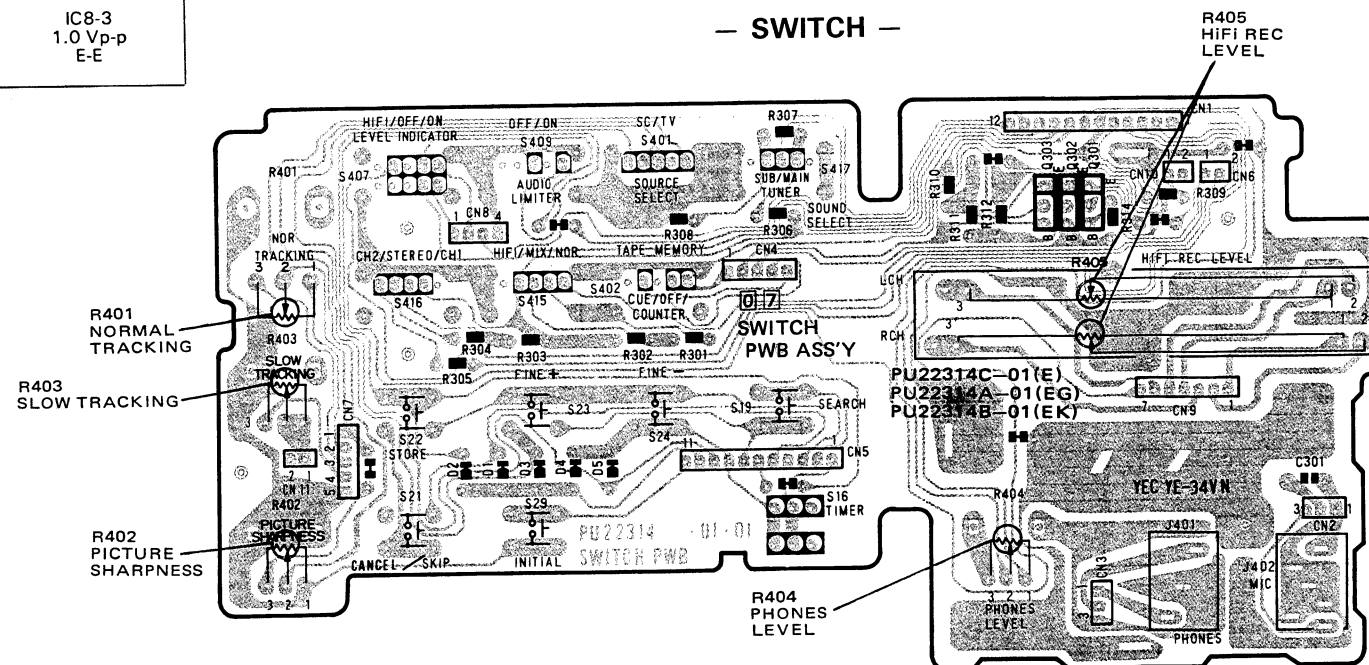
—Waveforms of Video (Luminance) circuit—



—Waveforms of Video (Colour) circuit—



— SWITCH —



3.19 VIDEO/AUDIO/FM AUDIO AND SWITCH CIRCUIT BOARDS

cuit—

3



10-10
4 Vp-p
13 MHz

6



P105
FLOUR
CATION
4 Vp-p

9



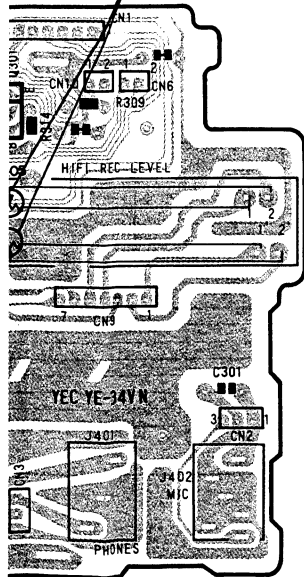
P1132
6 Vp-p

12



P110
5 Vp-p
AM DET
(MODEL ONLY)

R405
HIFI REC
LEVEL



R268
OFFSET(R)

R267
OFFSET(L)

R236
PB LEVEL(L)

R235
PB LEVEL(R)

R228
FM REC LEVEL

R45
Y NR BAL

R57
Y NR GAIN

R23
0.5H DELAY

R250
E-E LEVEL(R)

R247
E-E LEVEL(L)

R289
IND LEVEL(L)

R290
IND LEVEL(R)

R423
PB LEVEL

R434
BIAS ADJ

R151
LP FWD
SLOW TRACK

R153
SP SLOW
TRACKING

R152
LP REV
SLOW TRACK

R179
VXO

R168
INVERT
COL. LEVEL

R191
SECAM DET
(E/EG ONLY)

R160
CH SET DET

R149
SW POINT

R150
H DISCRI

(VIDEO)

(AUDIO)

E

F

G

3-22

3-22

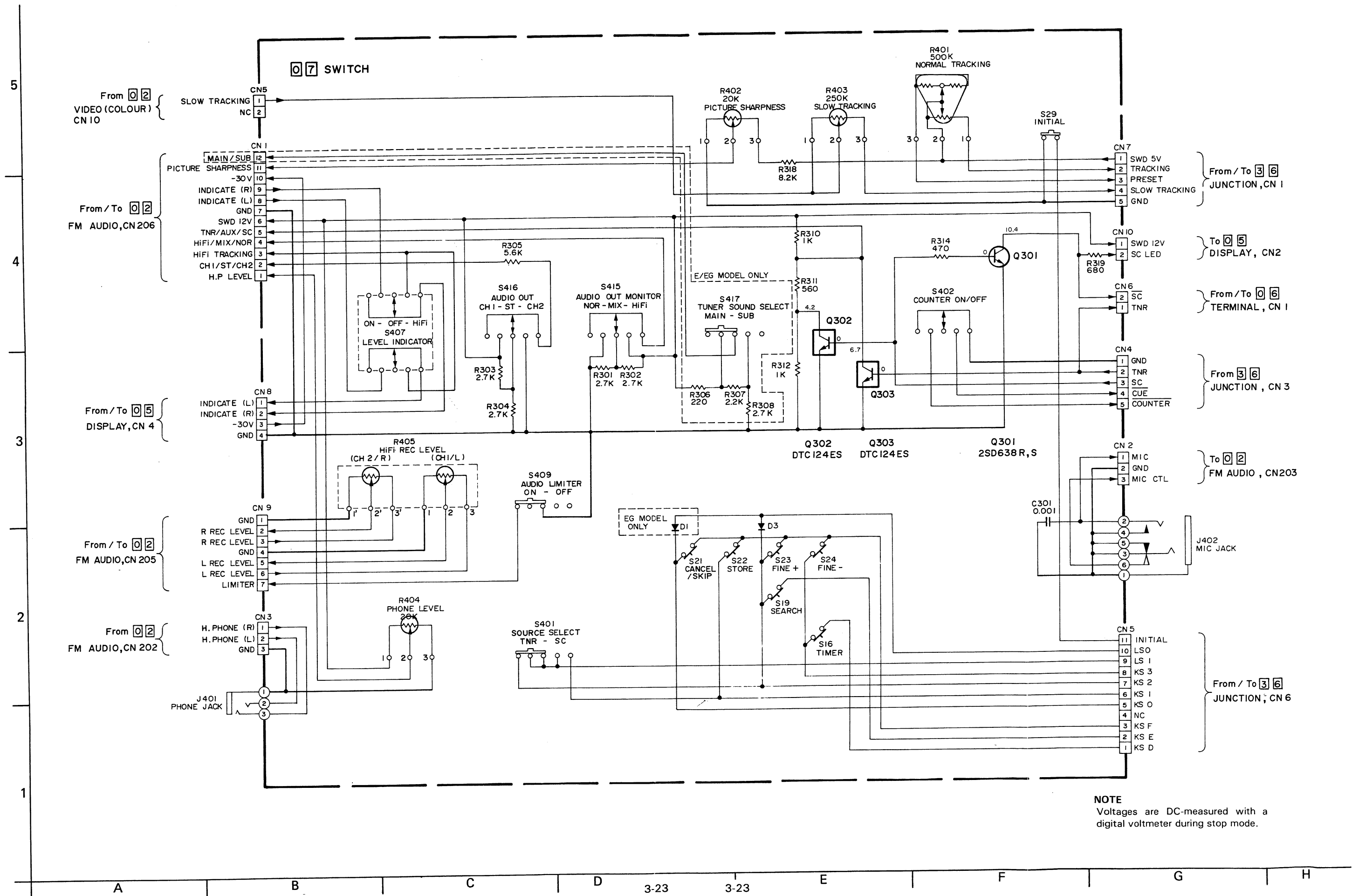
H

I

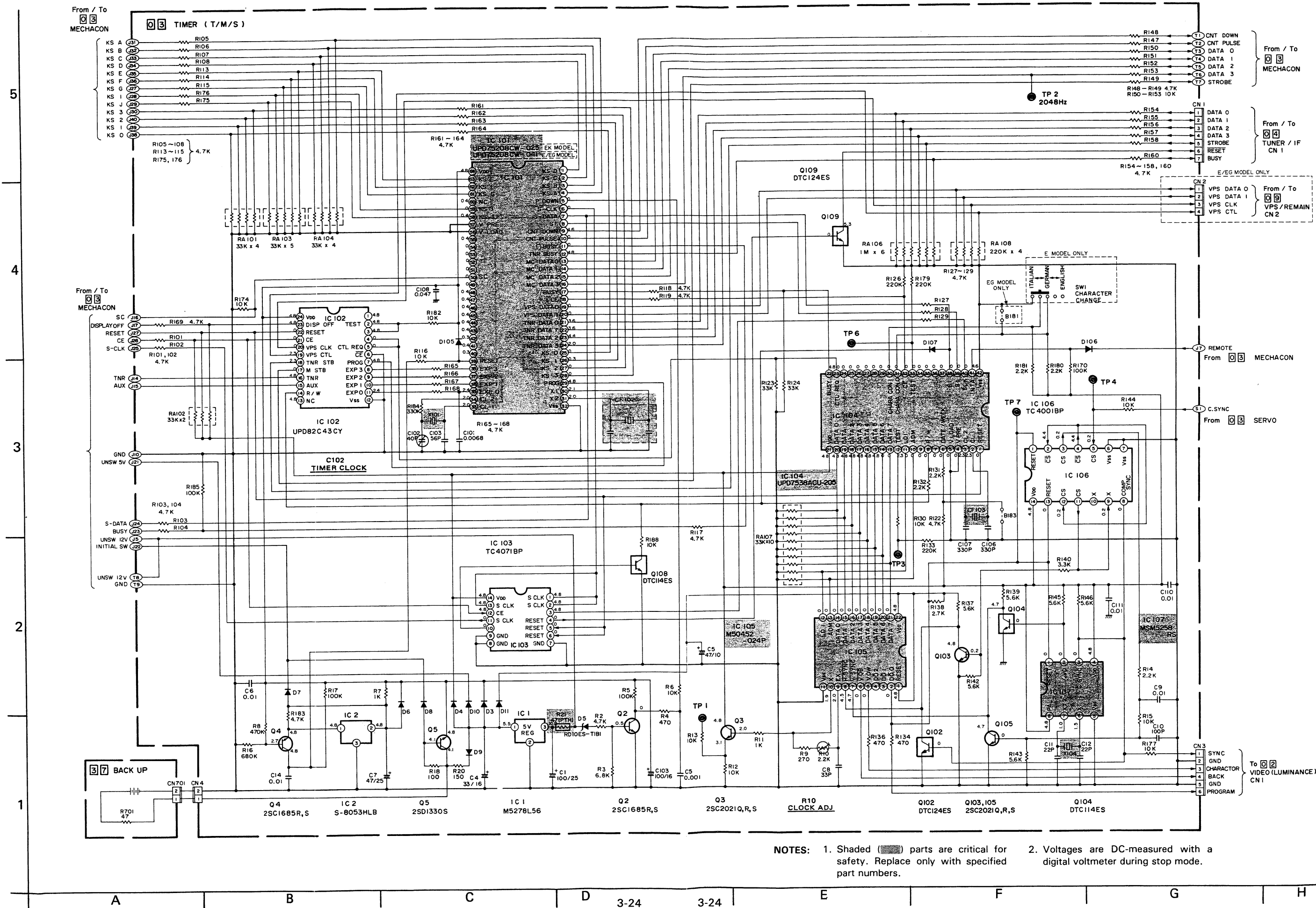
J

K

3.20 SWITCH SCHEMATIC DIAGRAM

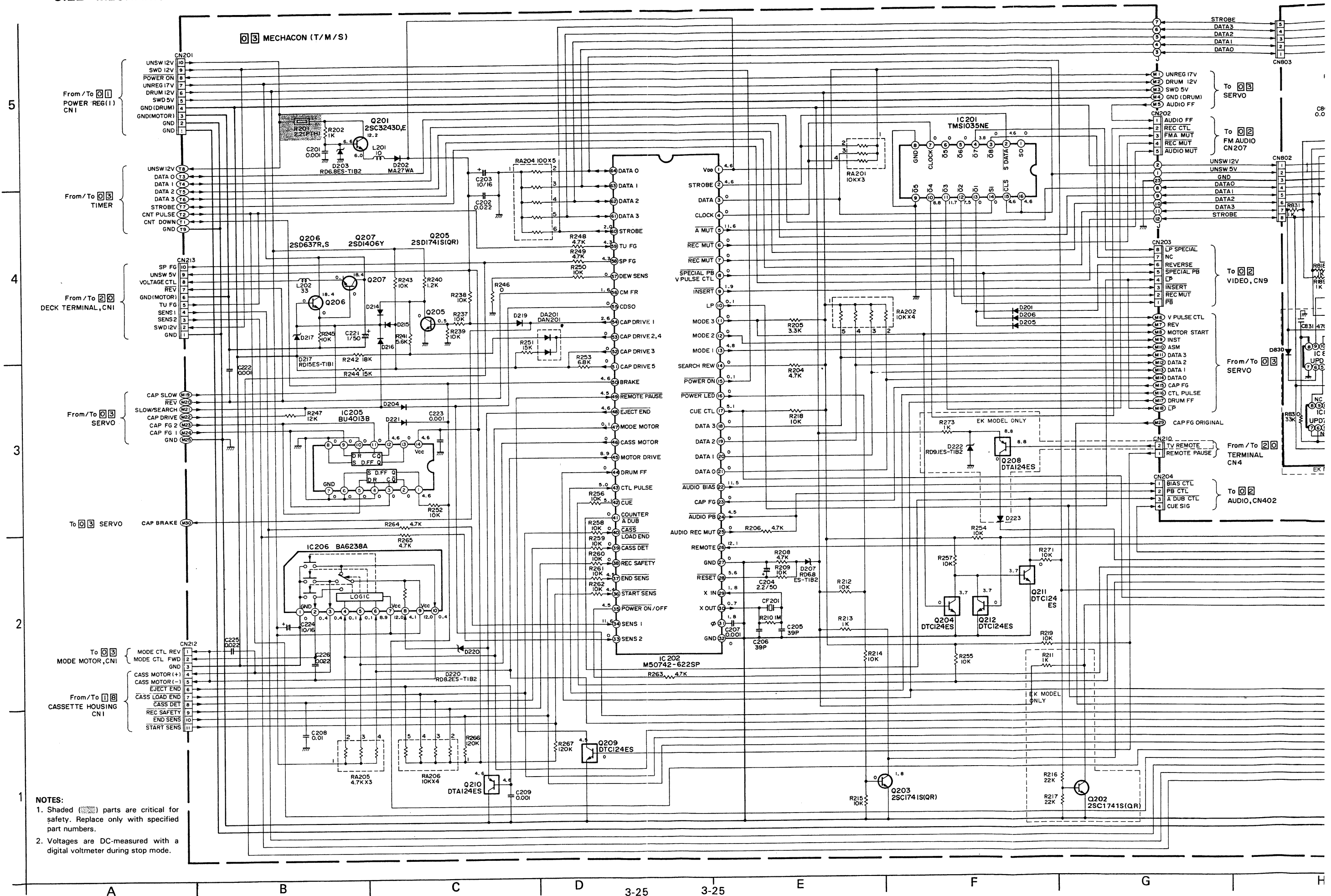


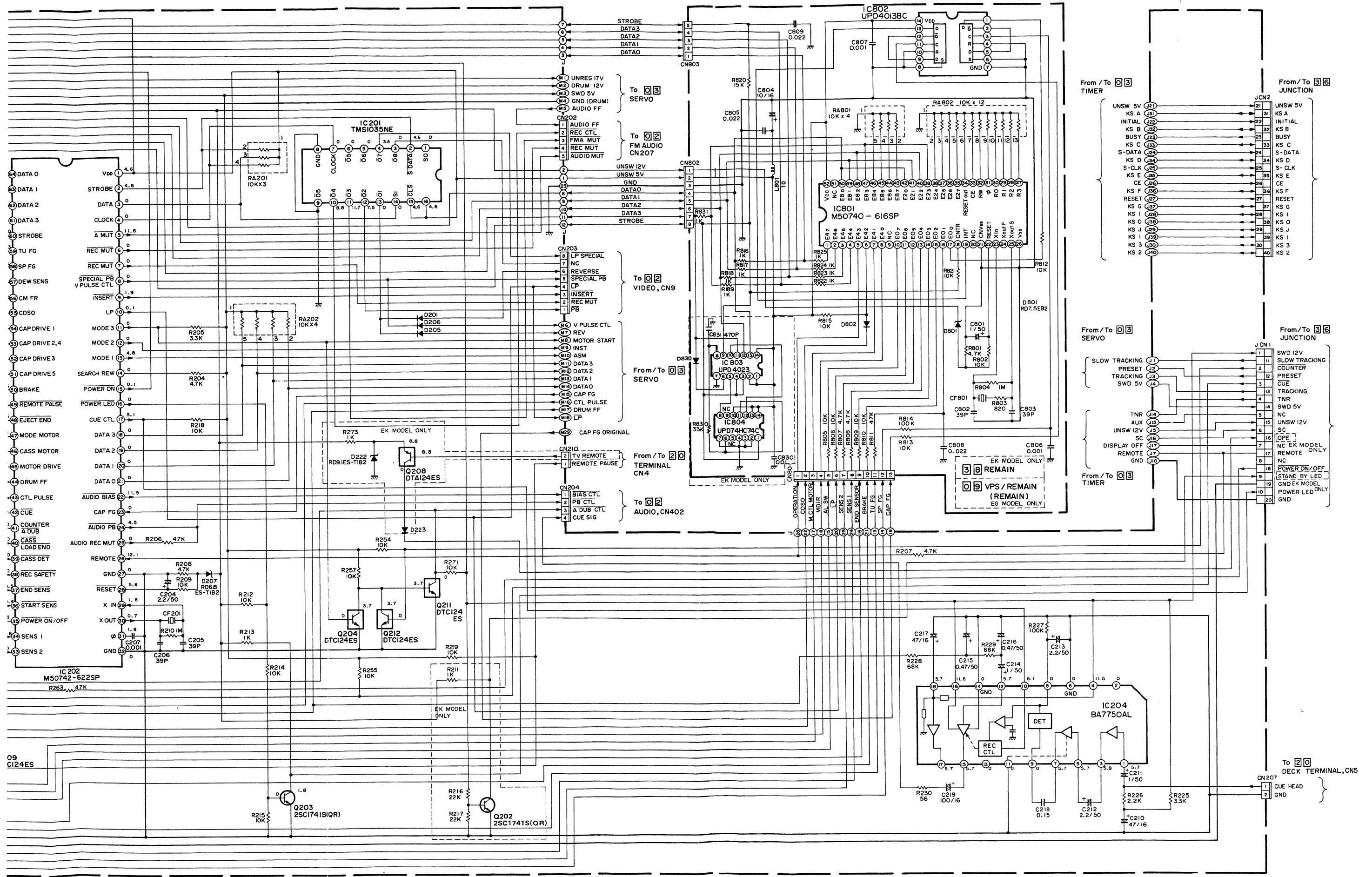
3.21 TIMER SCHEMATIC DIAGRAM



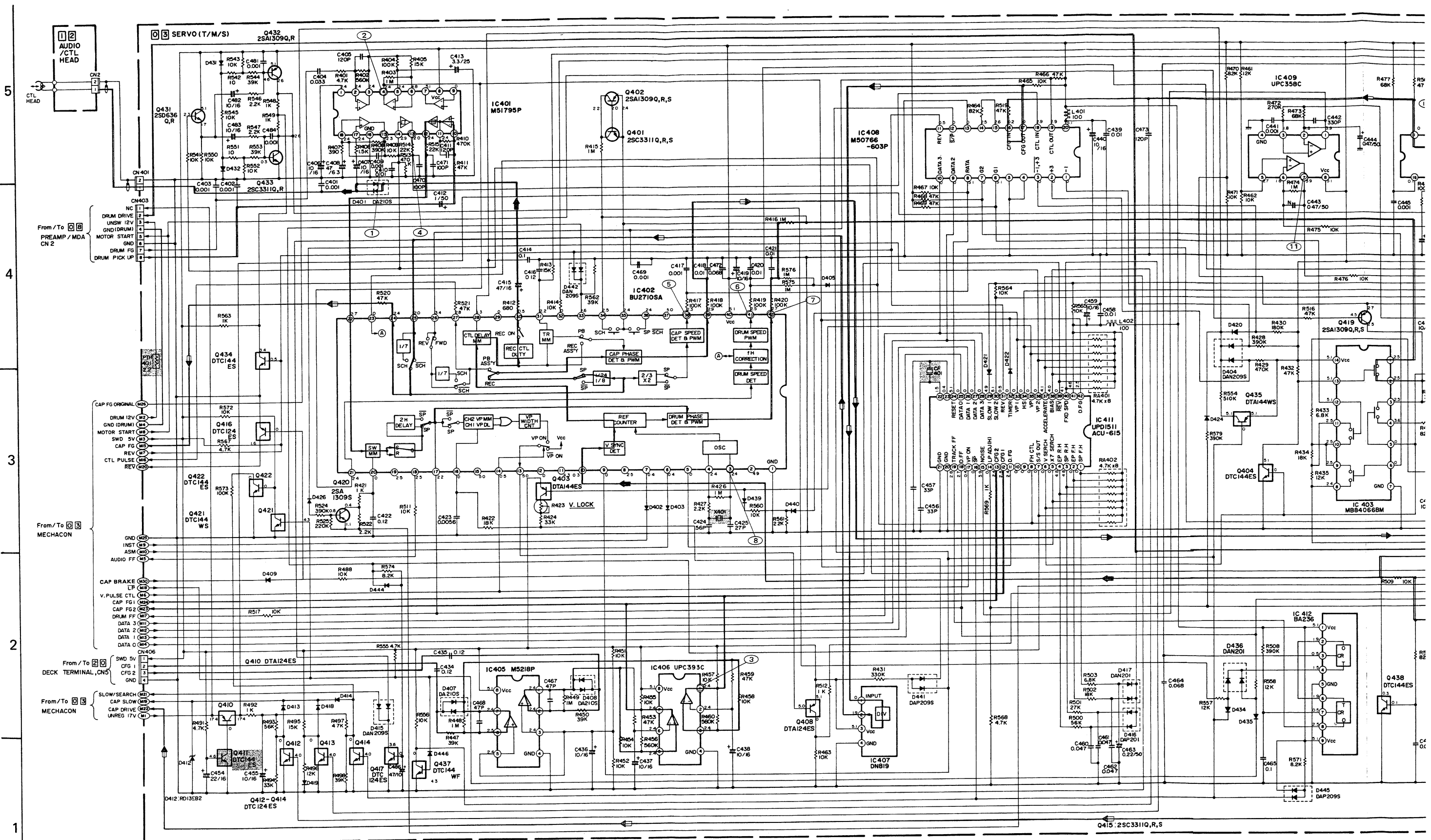
NOTES: 1. Shaded (hatched) parts are critical for safety. Replace only with specified part numbers. 2. Voltages are DC-measured with a digital voltmeter during stop mode.

3.22 MECHANISM CONTROL SCHEMATIC DIAGRAM



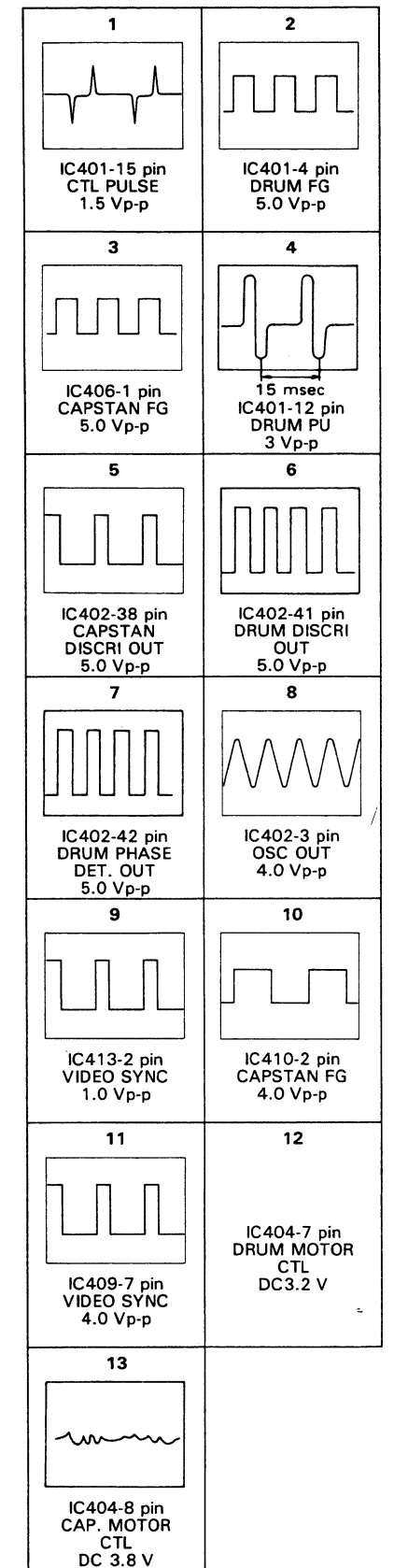
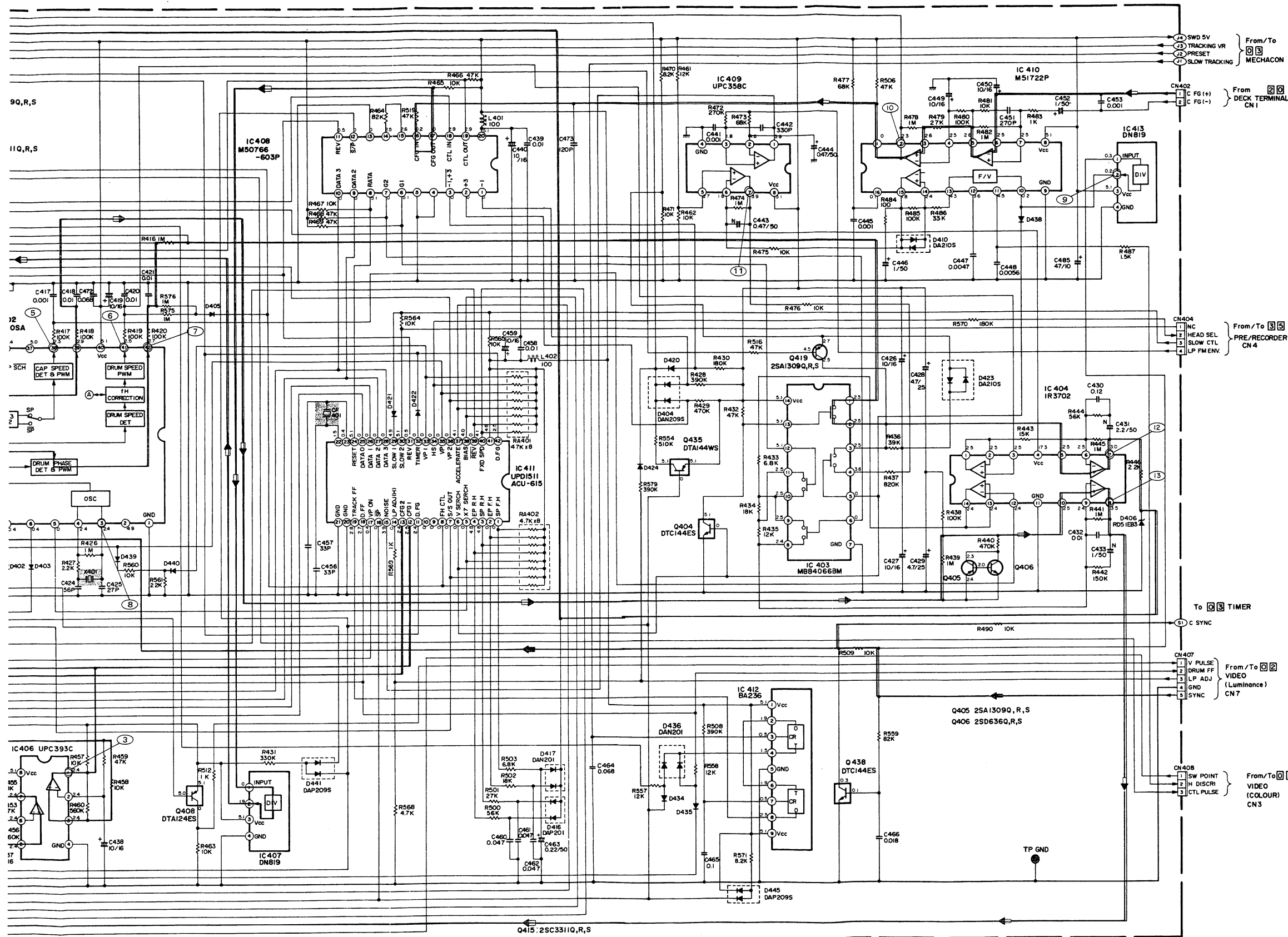


3.23 SERVO SCHEMATIC DIAGRAM



NOTES:
1. Shaded () parts are safety. Replace only v part numbers.

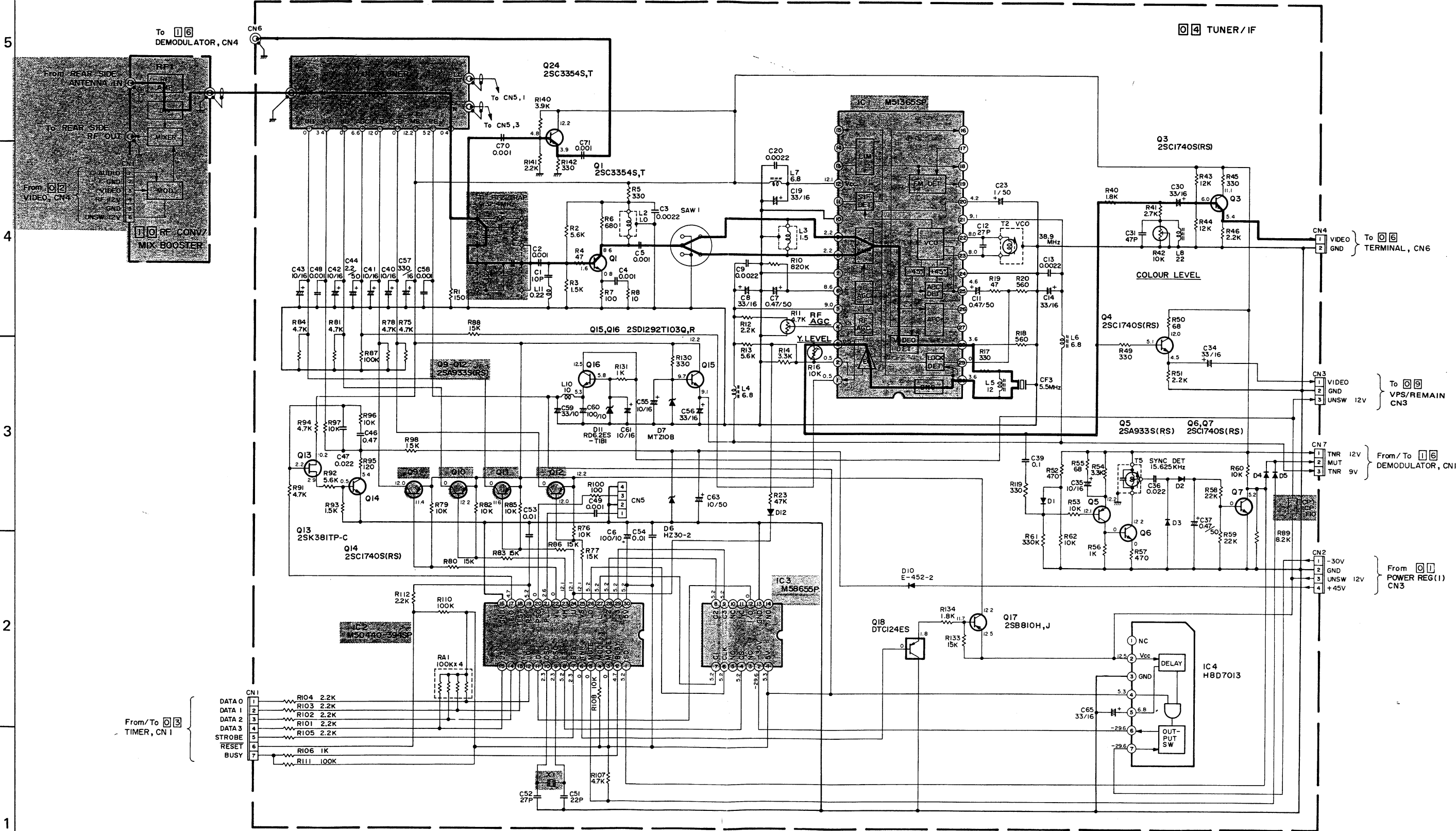
—Waveforms of SERVO (T/M/S) circuit—



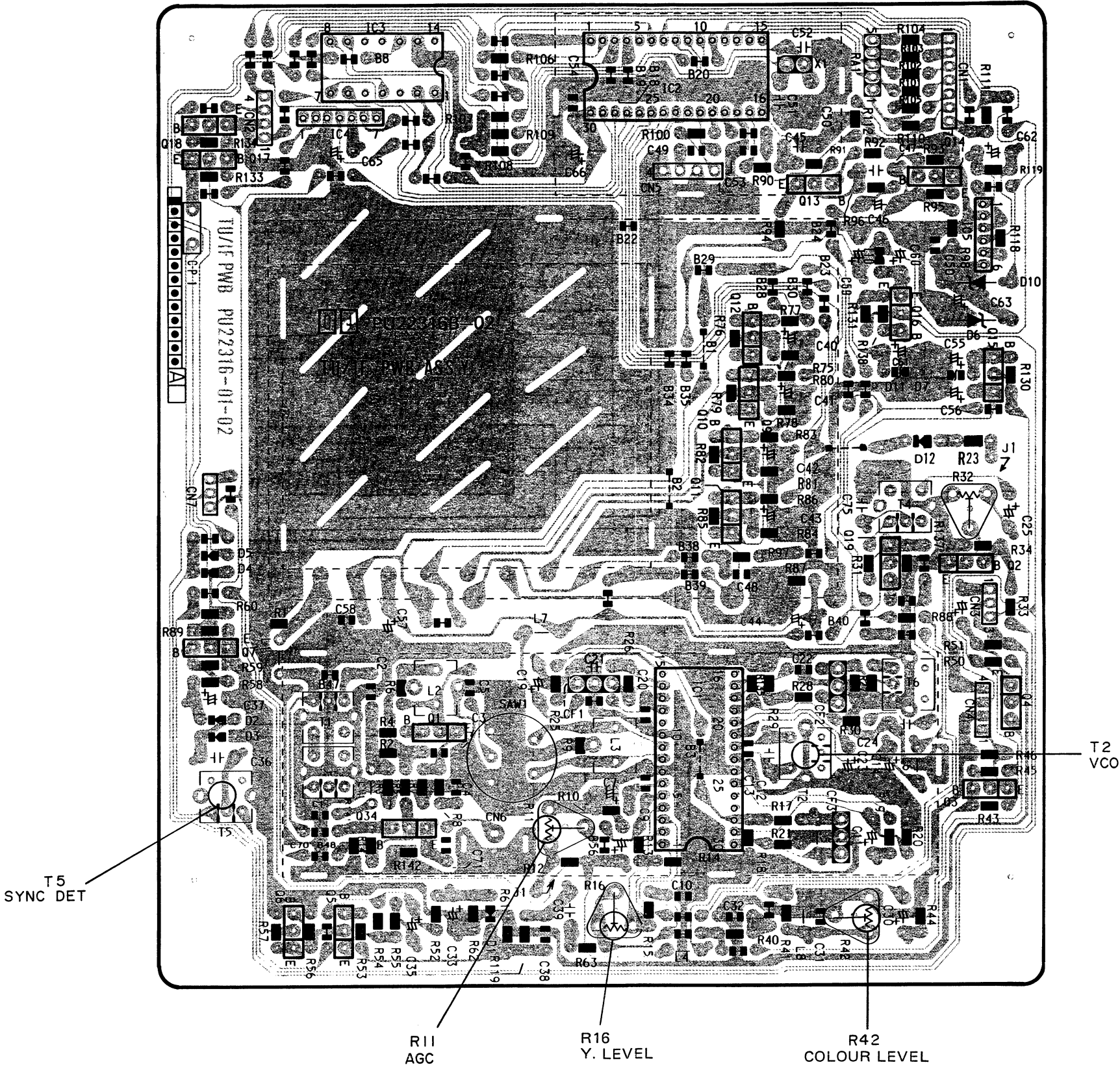
NOTES:

1. Shaded () parts are critical for safety. Replace only with specified part numbers.
2. Voltages are DC-measured with a digital voltmeter during PLAY BACK mode.

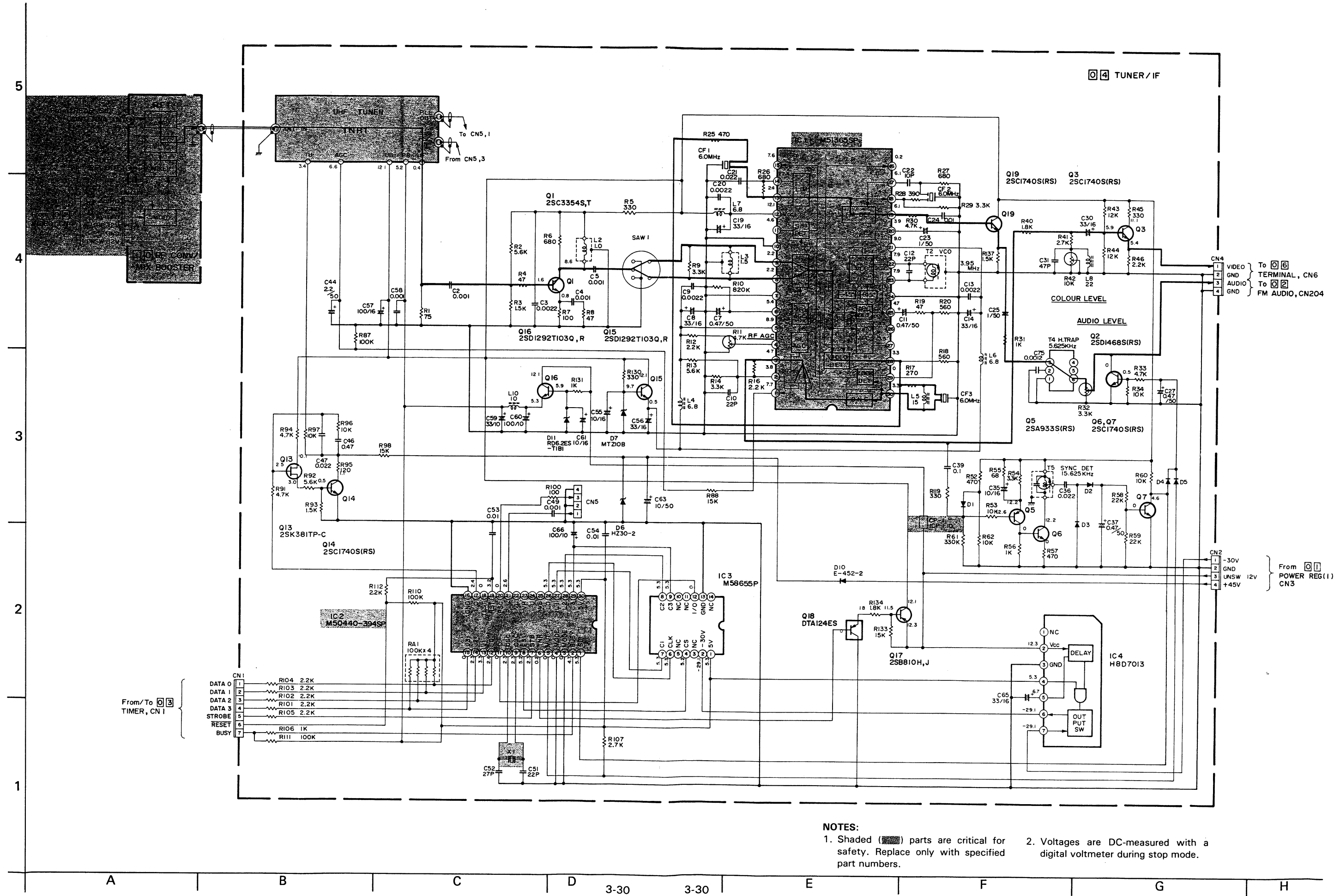
3.25 TUNER/IF SCHEMATIC DIAGRAM (HR-D755E/EG MODEL)



3.26 TUNER/IF CIRCUIT BOARD (HR-D755E/EG MODEL)

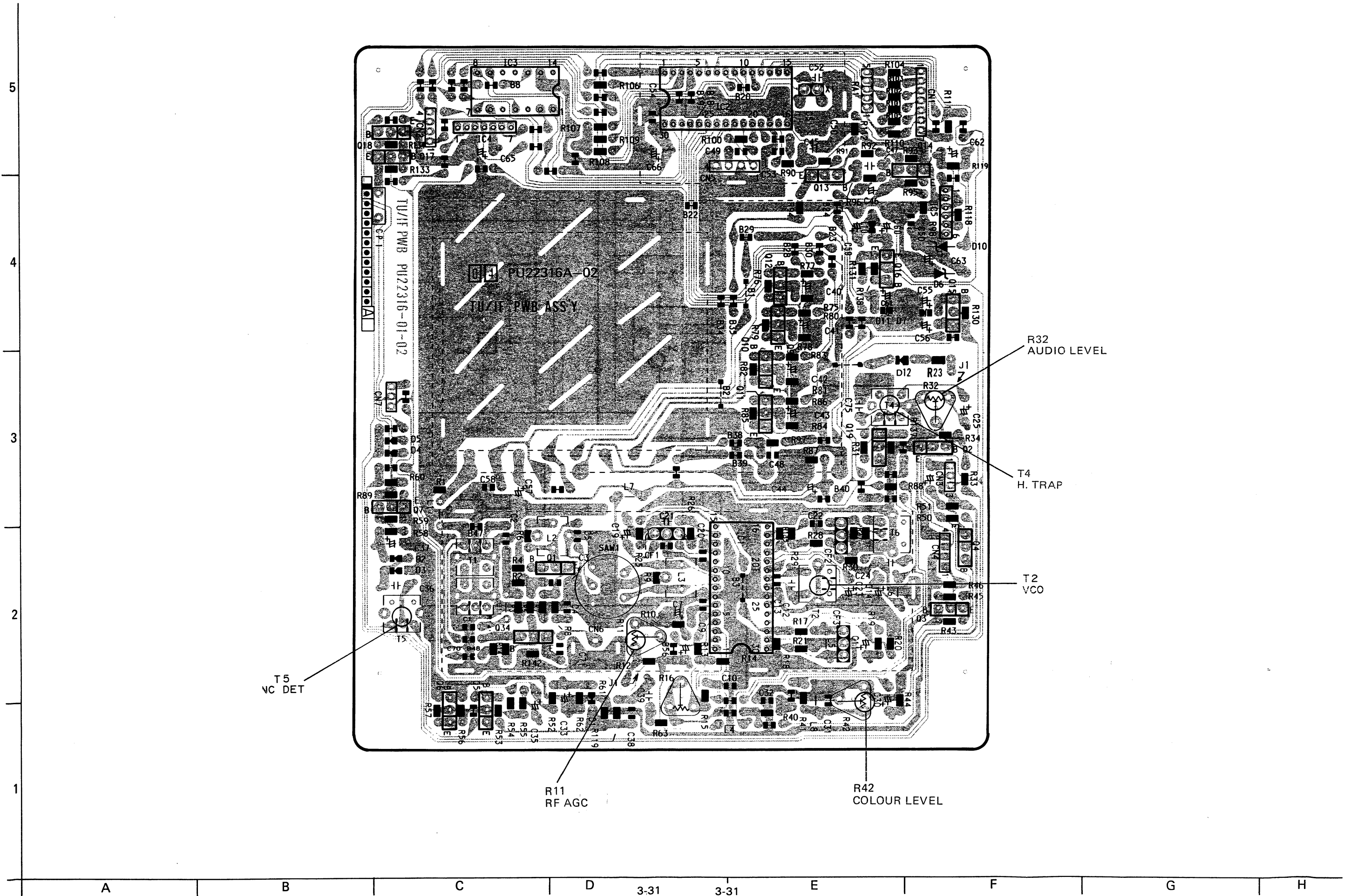


3.27 TUNER/IF SCHEMATIC DIAGRAM (HR-D755EK MODEL)

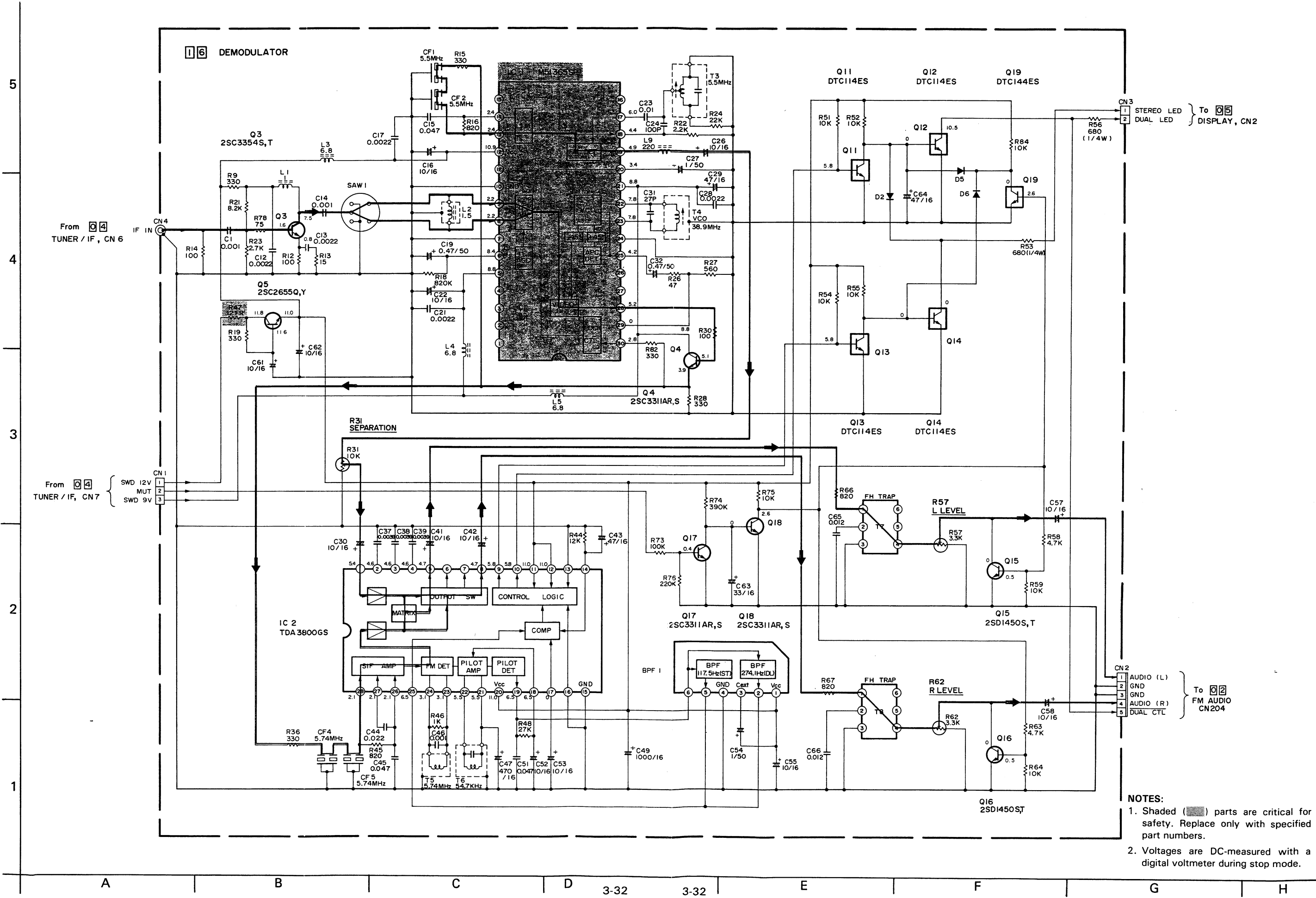


- NOTES:
- 1. Shaded (■) parts are critical for safety. Replace only with specified part numbers.
 - 2. Voltages are DC-measured with a digital voltmeter during stop mode.

3.28 TUNER/IF CIRCUIT BOARD (HR-D755EK MODEL)

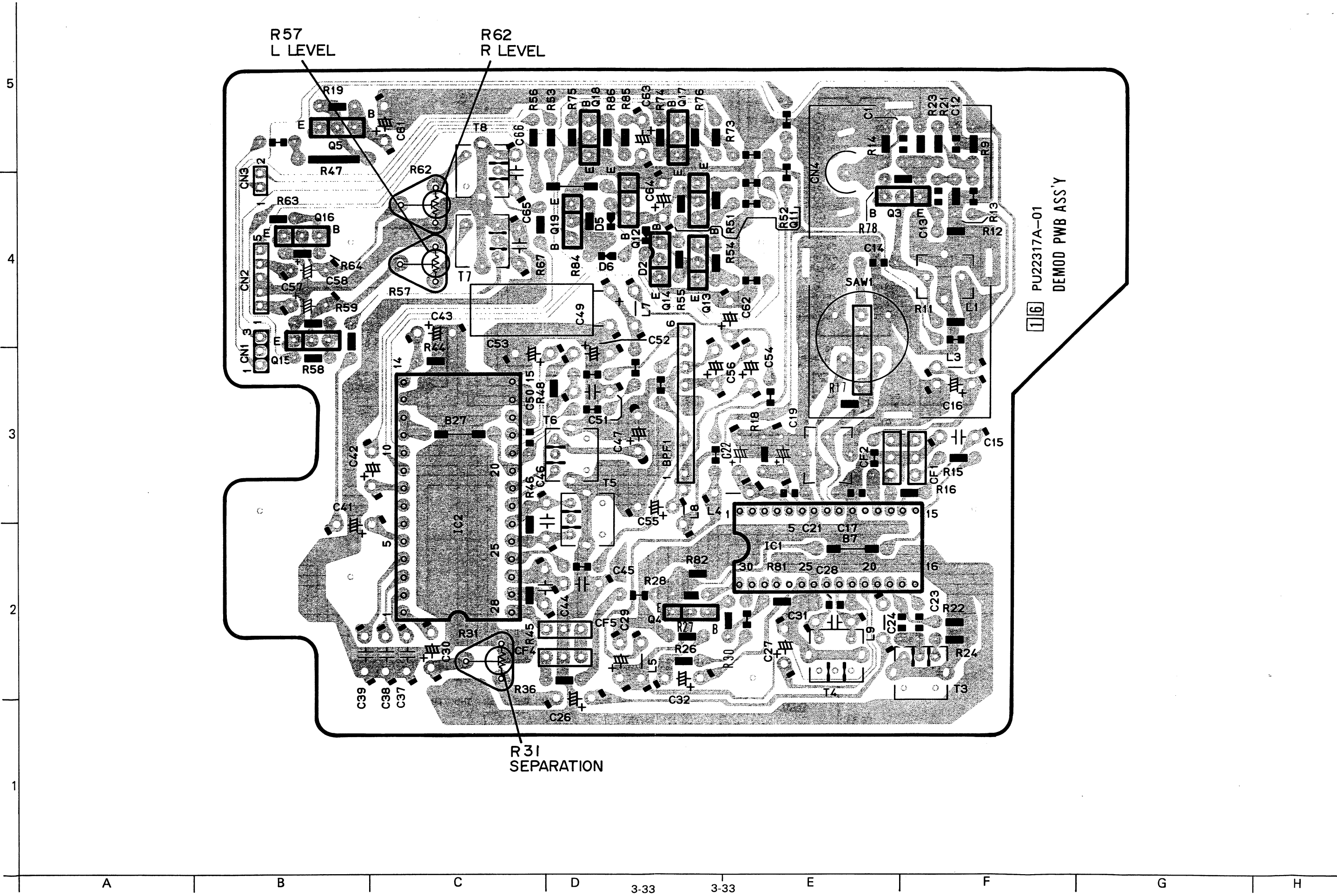


3.29 DEMODULATOR SCHEMATIC DIAGRAM (HR-D755E/EG MODEL ONLY)

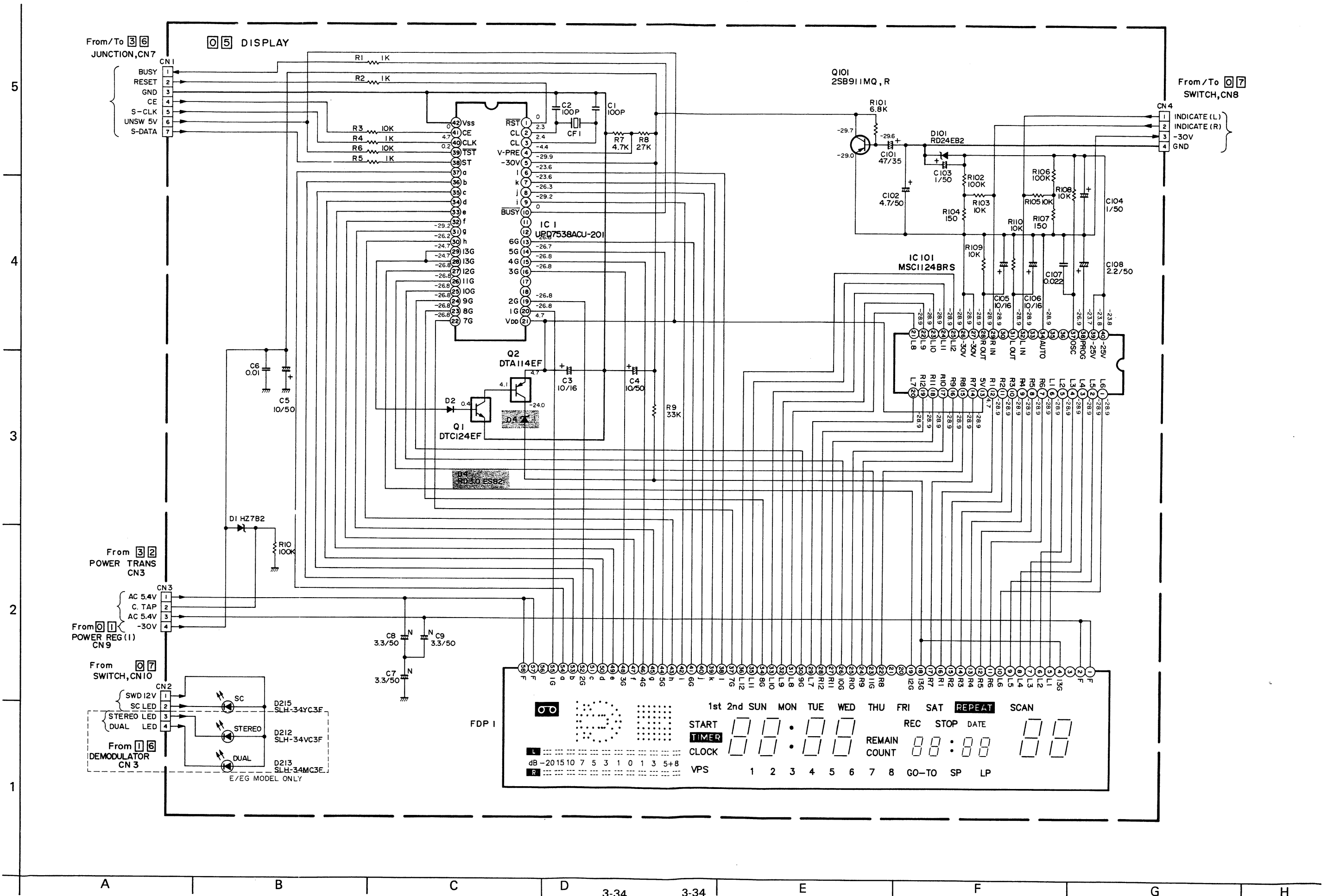


- NOTES:
- 1. Shaded (■) parts are critical for safety. Replace only with specified part numbers.
 - 2. Voltages are DC-measured with a digital voltmeter during stop mode.

3.30 DEMODULATOR CIRCUIT BOARD (HR-D755E/EG MODEL ONLY)

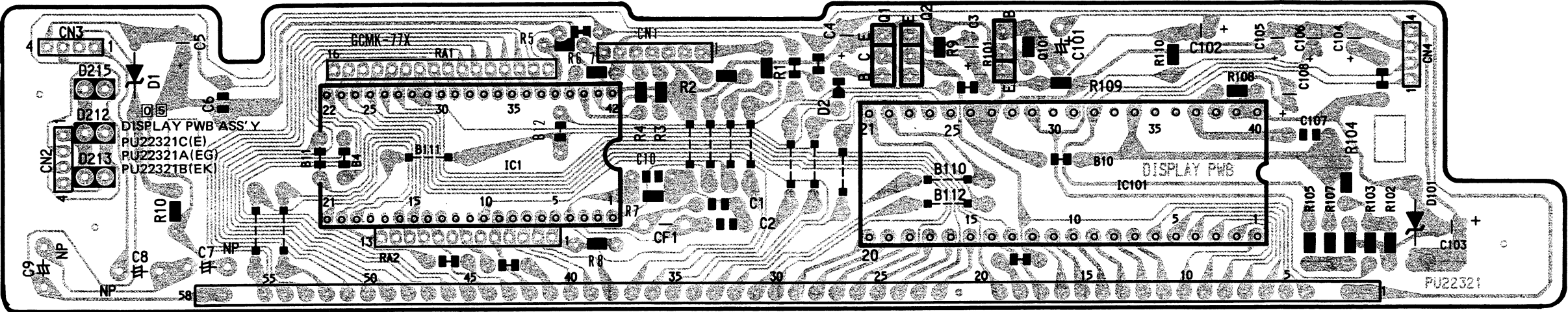


3.31 DISPLAY SCHEMATIC DIAGRAM

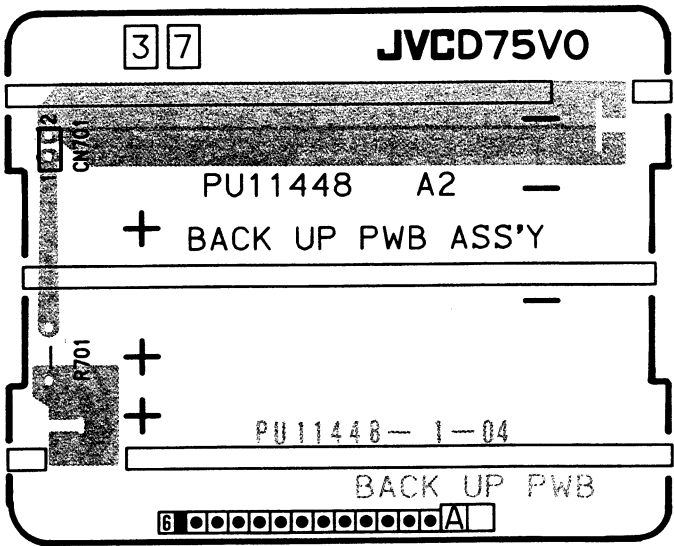


3.32 DISPLAY, BACK UP AND AUDIO/CTL HEAD CIRCUIT BOARDS

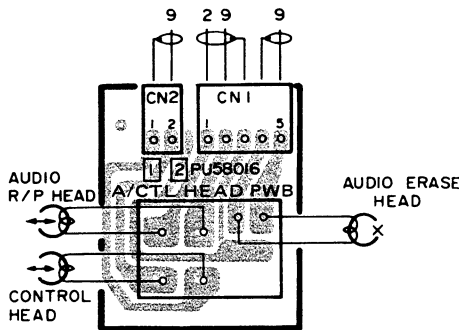
— DISPLAY —



— BACK UP —



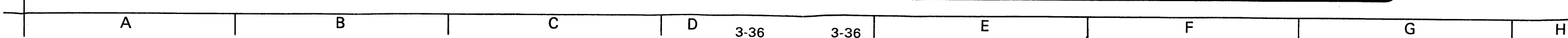
— AUDIO/CONTROL HEAD —



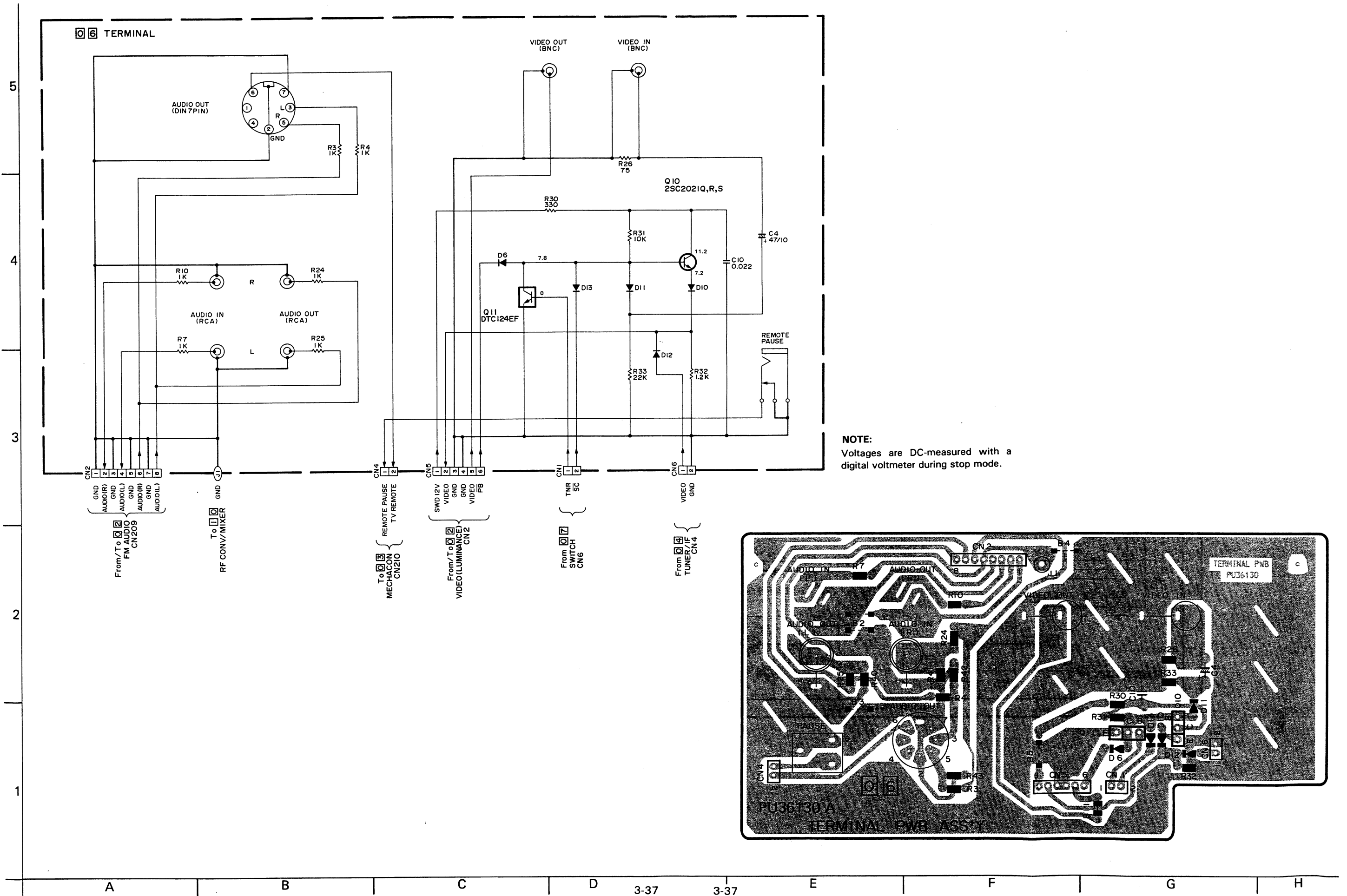
A vertical scale with five horizontal tick marks. The numbers 1, 2, 3, 4, and 5 are placed to the left of the tick marks, increasing from bottom to top.



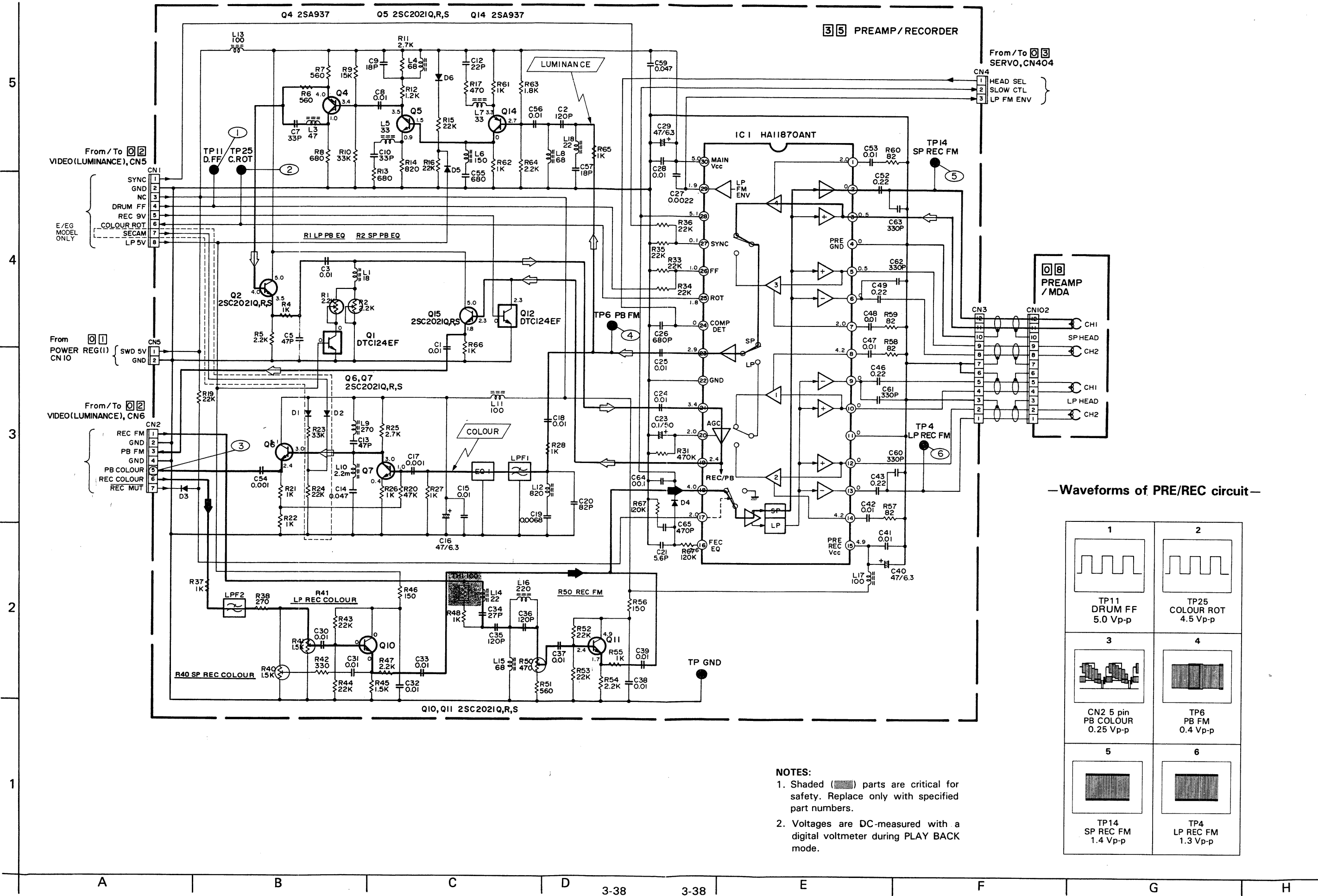
1



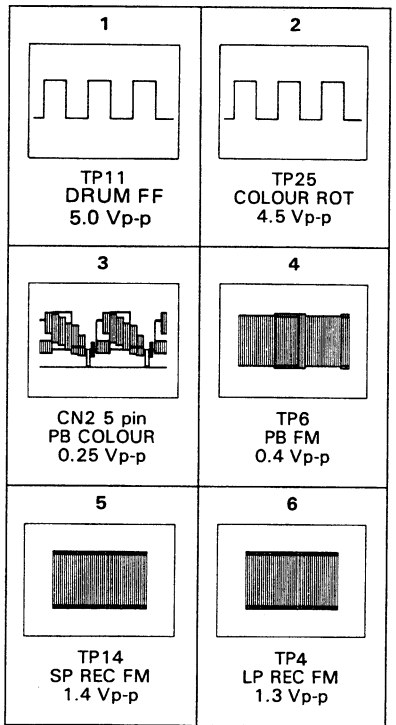
VIDE-V03593 / Druck 39



3.35 PRE/RECORDER SCHEMATIC DIAGRAM



—Waveforms of PRE/REC circuit—



- NOTES:
- 1. Shaded (■) parts are critical for safety. Replace only with specified part numbers.
 - 2. Voltages are DC-measured with a digital voltmeter during PLAY BACK mode.

5



3

2

A

B

C

D

3-39

3-39

E

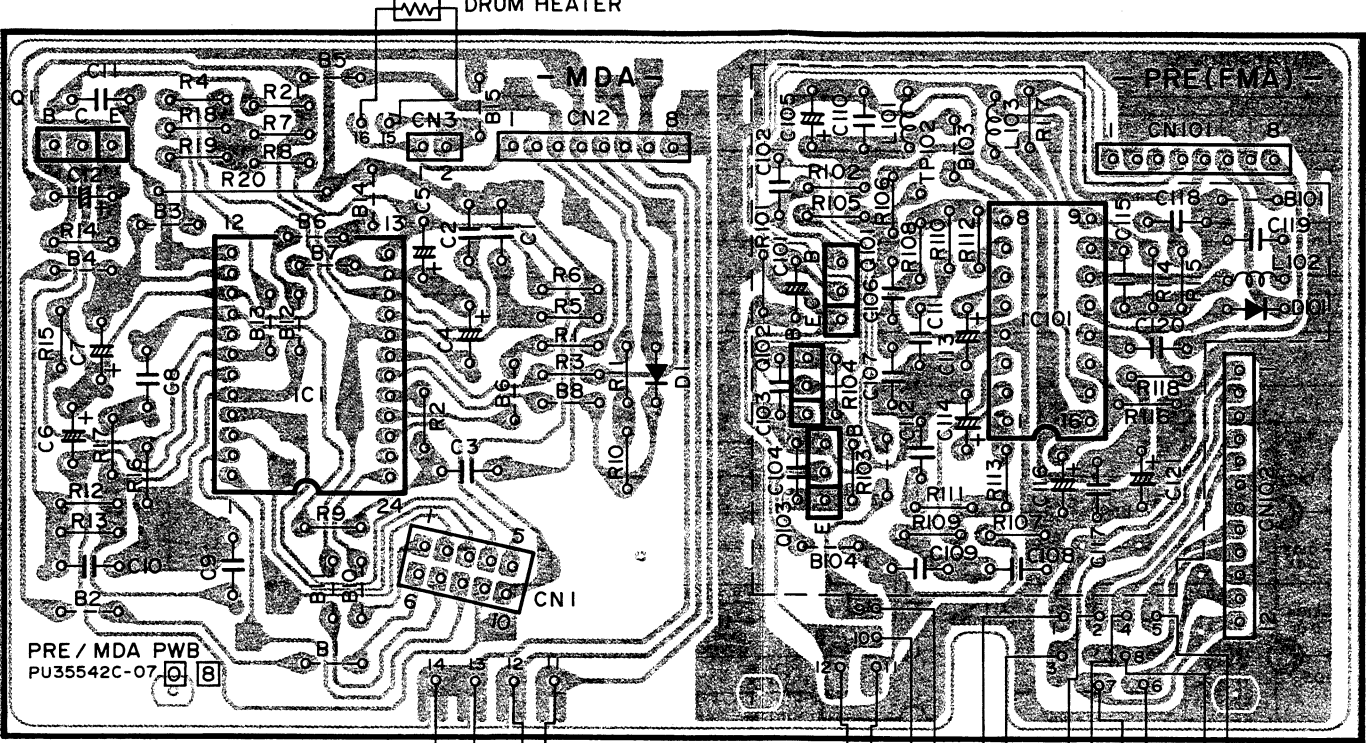
F

G

4

3.37 PREAMP/MDA AND PRE/RECORDER CIRCUIT BOARDS

—PREAMP/MDA—



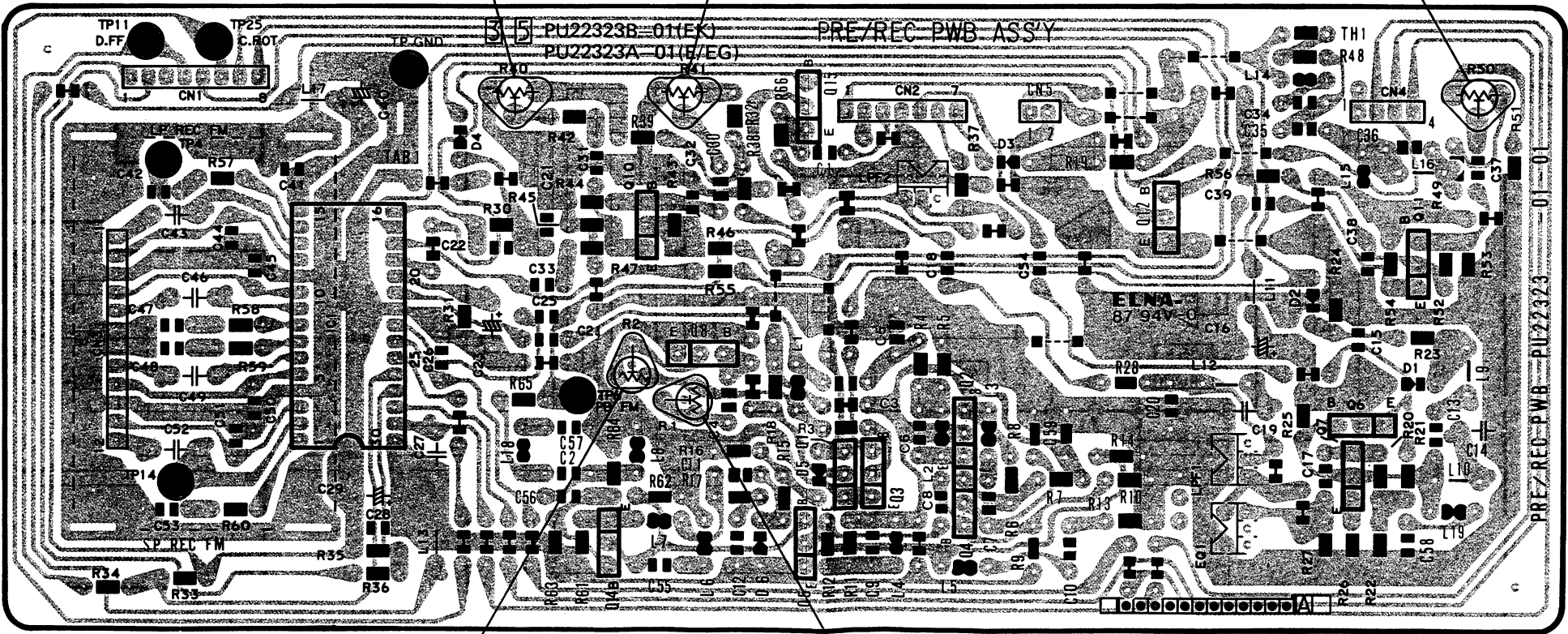
From 27
DRUM FG

DRUM
PU HEAD

CHI CH2 LP CH2 LP CHI SP CH2 SP CHI
FMA
HEADS

VIDEO
HEADS

—PRE/RECORDER—



R40 SP REC COLOUR

R41 LP REC COLOUR

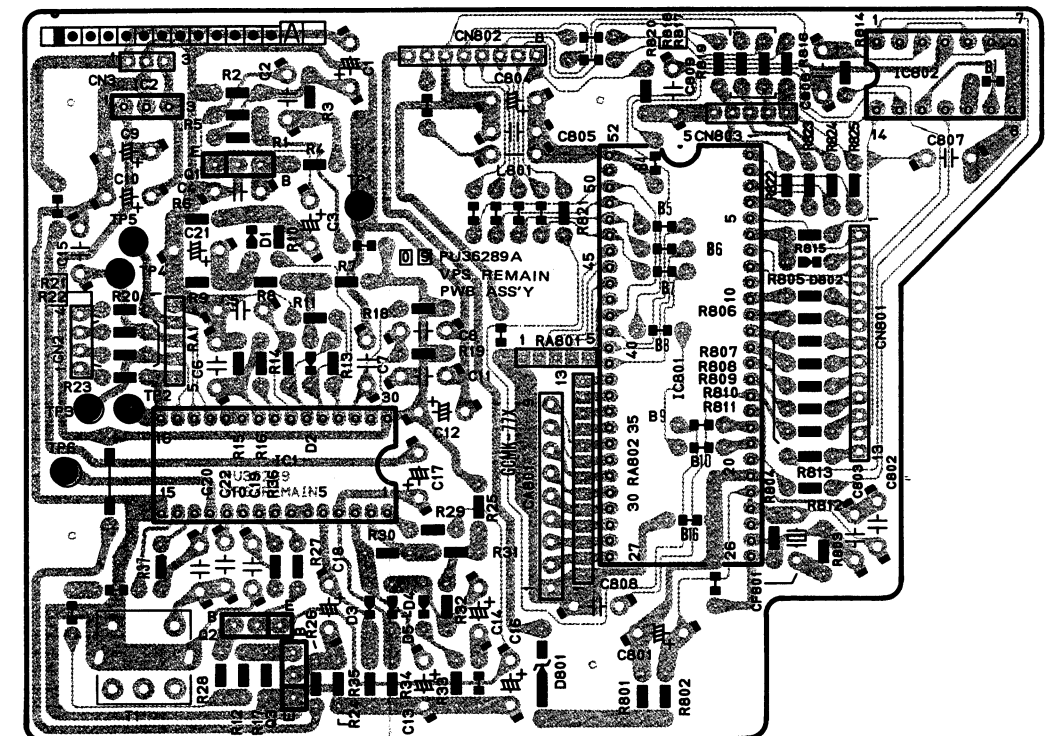
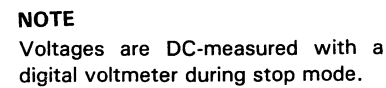
R50 REC FM

R2 SP PBEQ

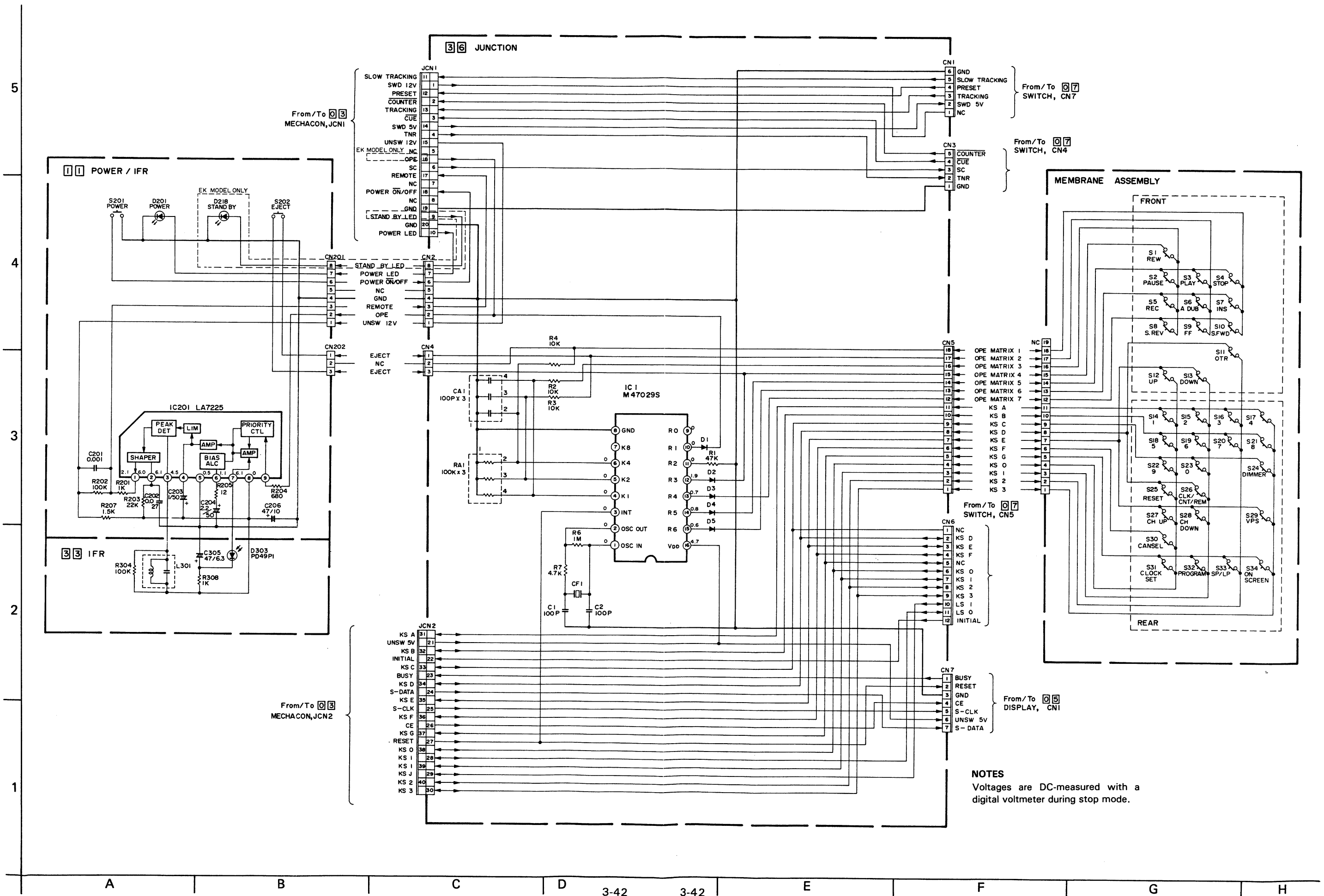
R1 LP PBEQ

A B C D 3-40 E F G H

VIDE-V03593 / Druck 43



3.39 JUNCTION, POWER SWITCH AND MEMBRANE SWITCH SCHEMATIC DIAGRAMS



1 2 3 4 5

POWER/IFR PWB

C

PU36123

PU36123A(E/EG) / PU36123B(EK)
POWER/IFR PWB ASSY D218

1 9

CN201 5

STANDBY

R204 R203
R205 R207

C204 C206
C202 C205

R201 C20

S203 S202 S201
V/T EJECT POWER

D202 D201

VIDEO POWER

GCMK-81X

CN202

TU PWB ASSY

4 1 ELNA-437
94V-0

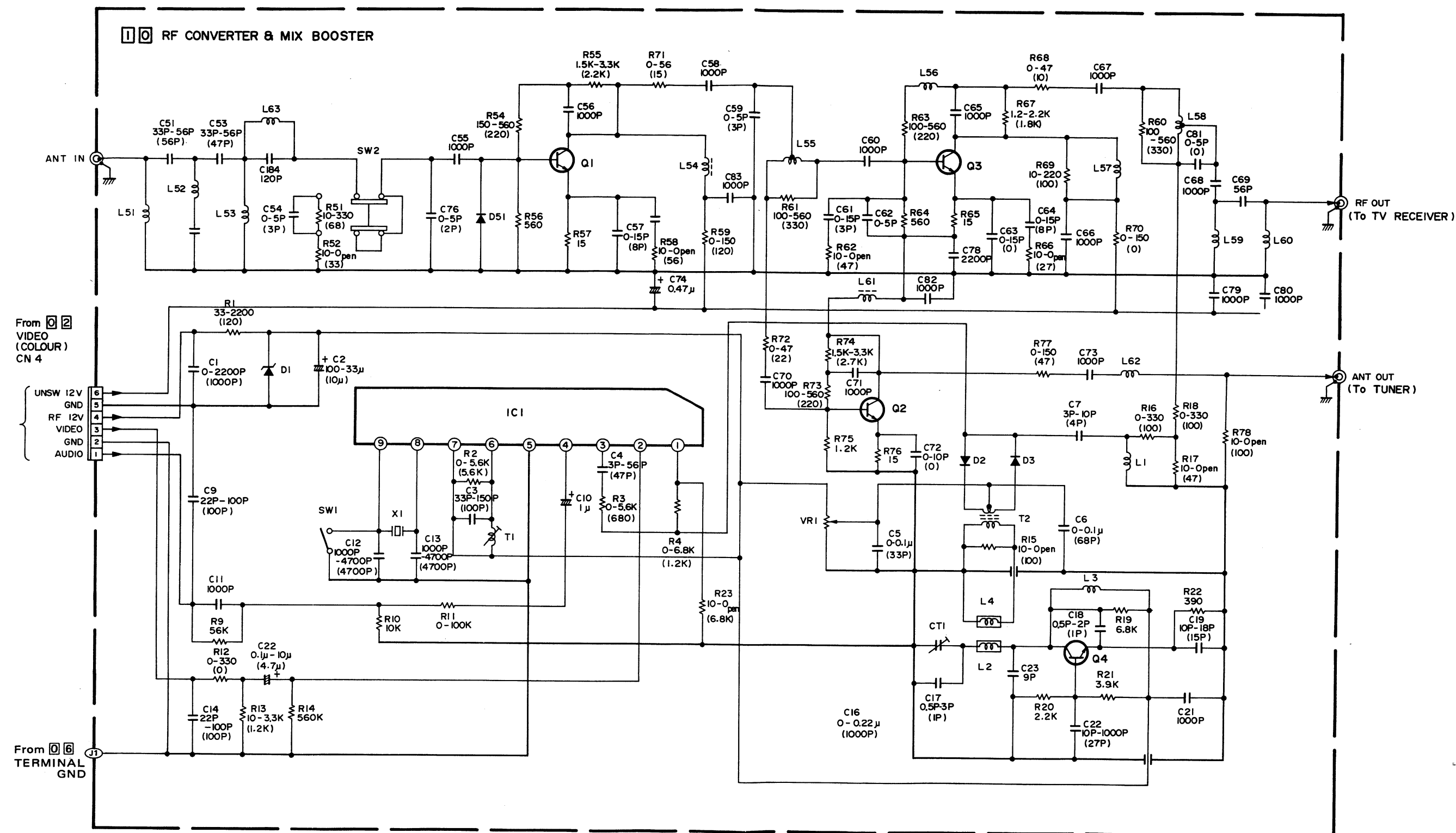
3 2 D1

PU35632 A2

PH 35632 M. PWB

ELN A-437

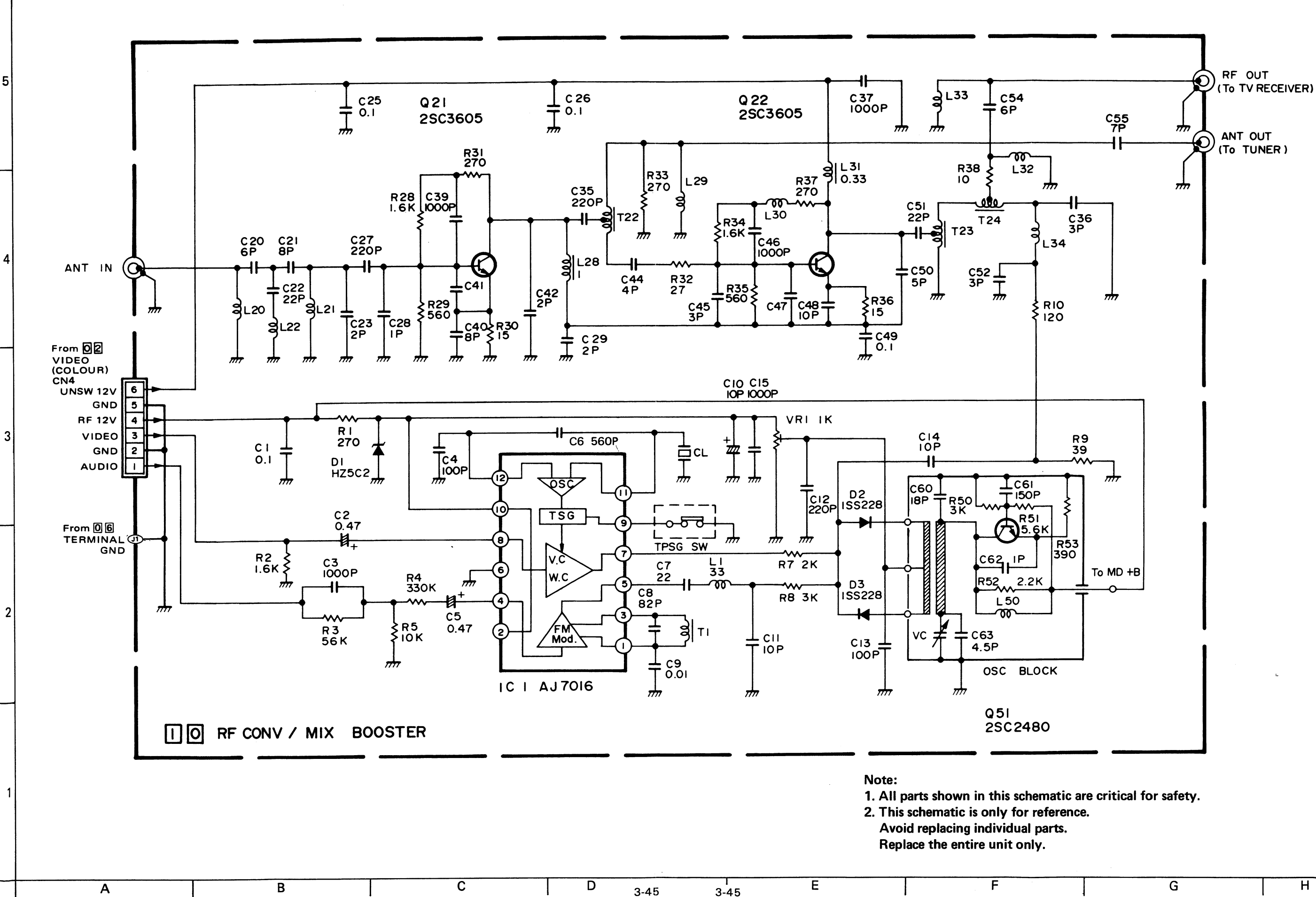
3.41 RF CONVERTER AND MIX BOOSTER SCHEMATIC DIAGRAMS (HR-D755E/EG MODEL)



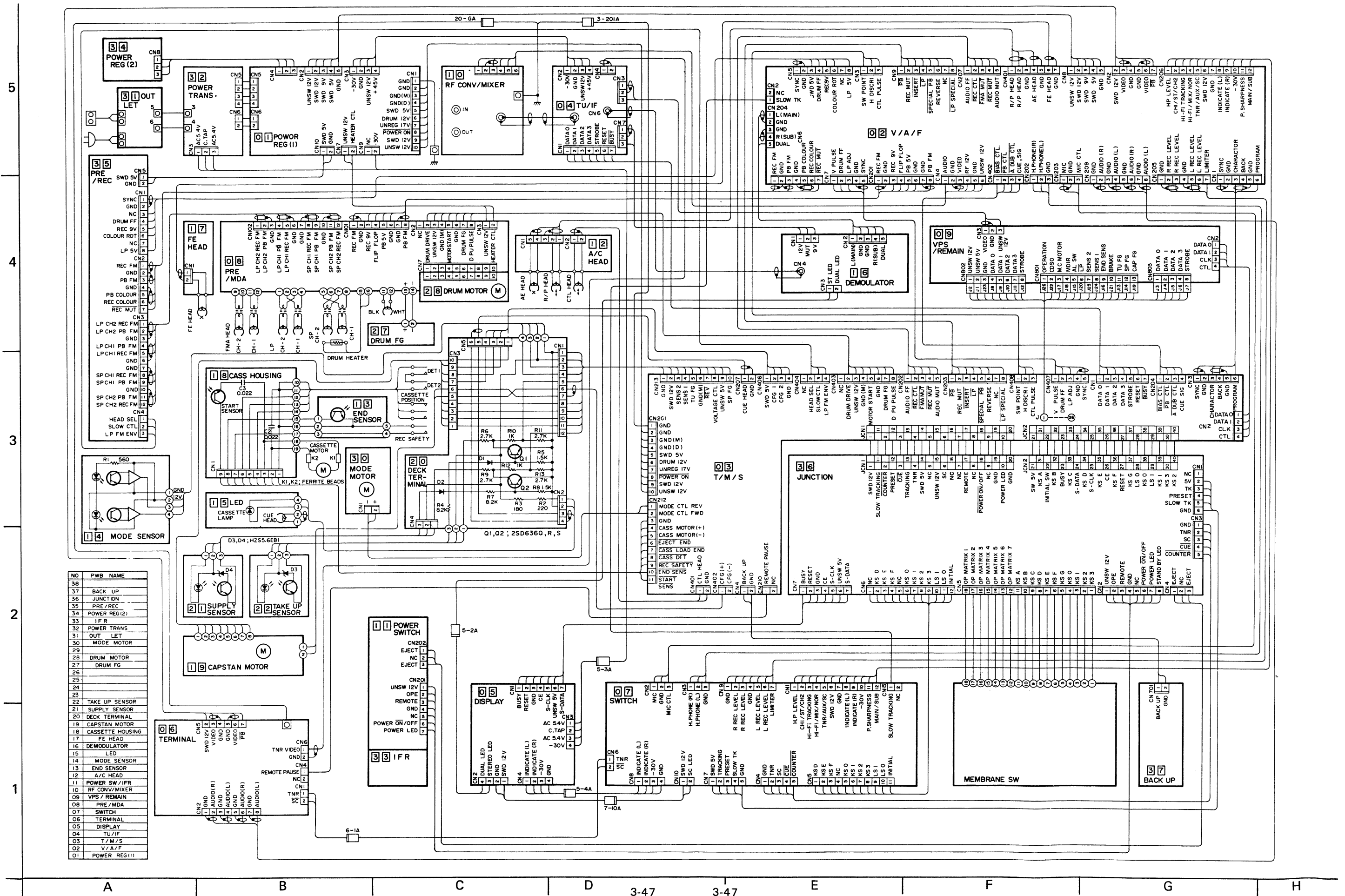
Note:

1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
 Avoid replacing individual parts.
 Replace the entire unit only.

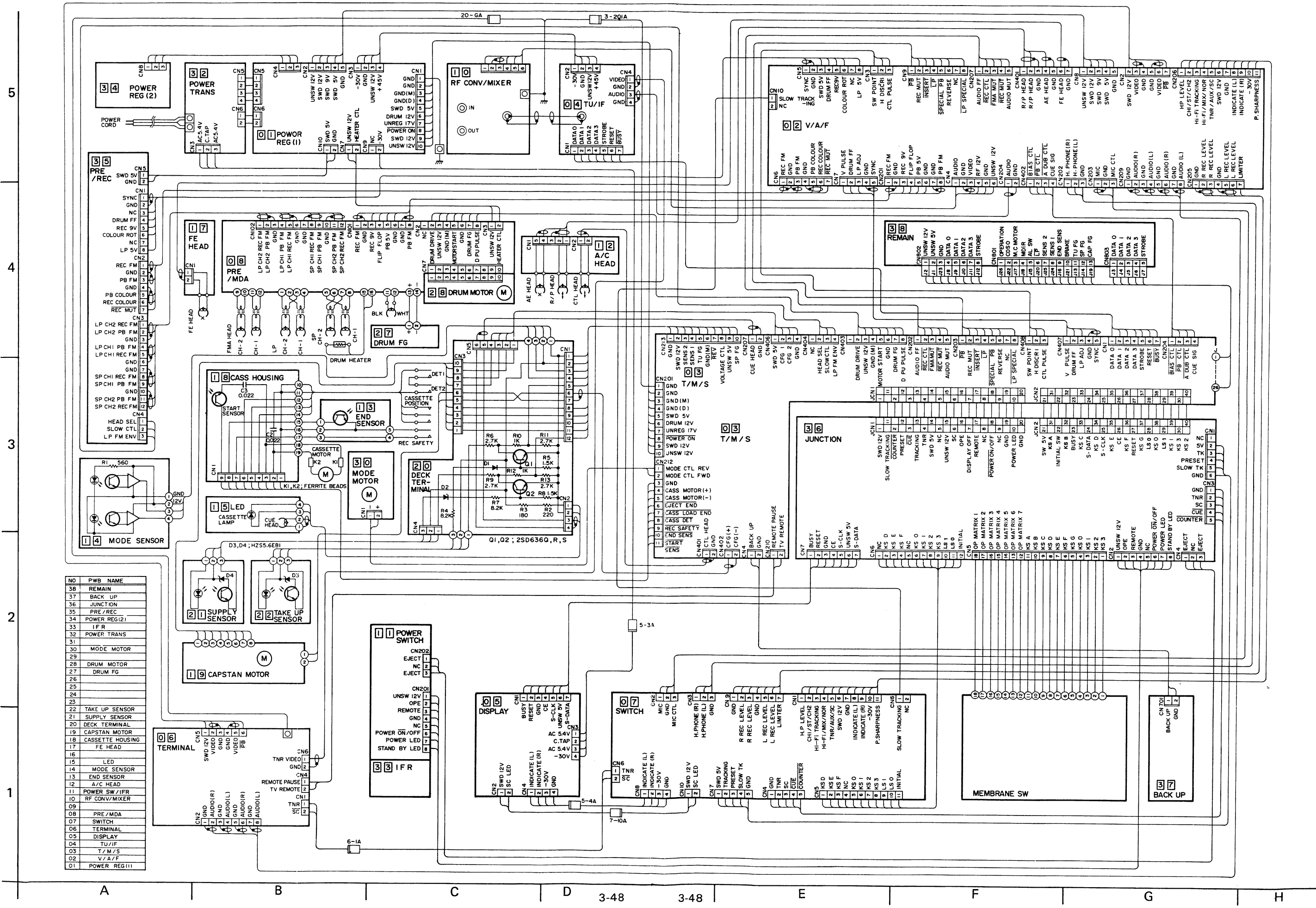
3.42 RF CONVERTER AND MIX BOOSTER SCHEMATIC DIAGRAMS (HR-D755EK MODEL)



VIDE-V03593 / Druck 49

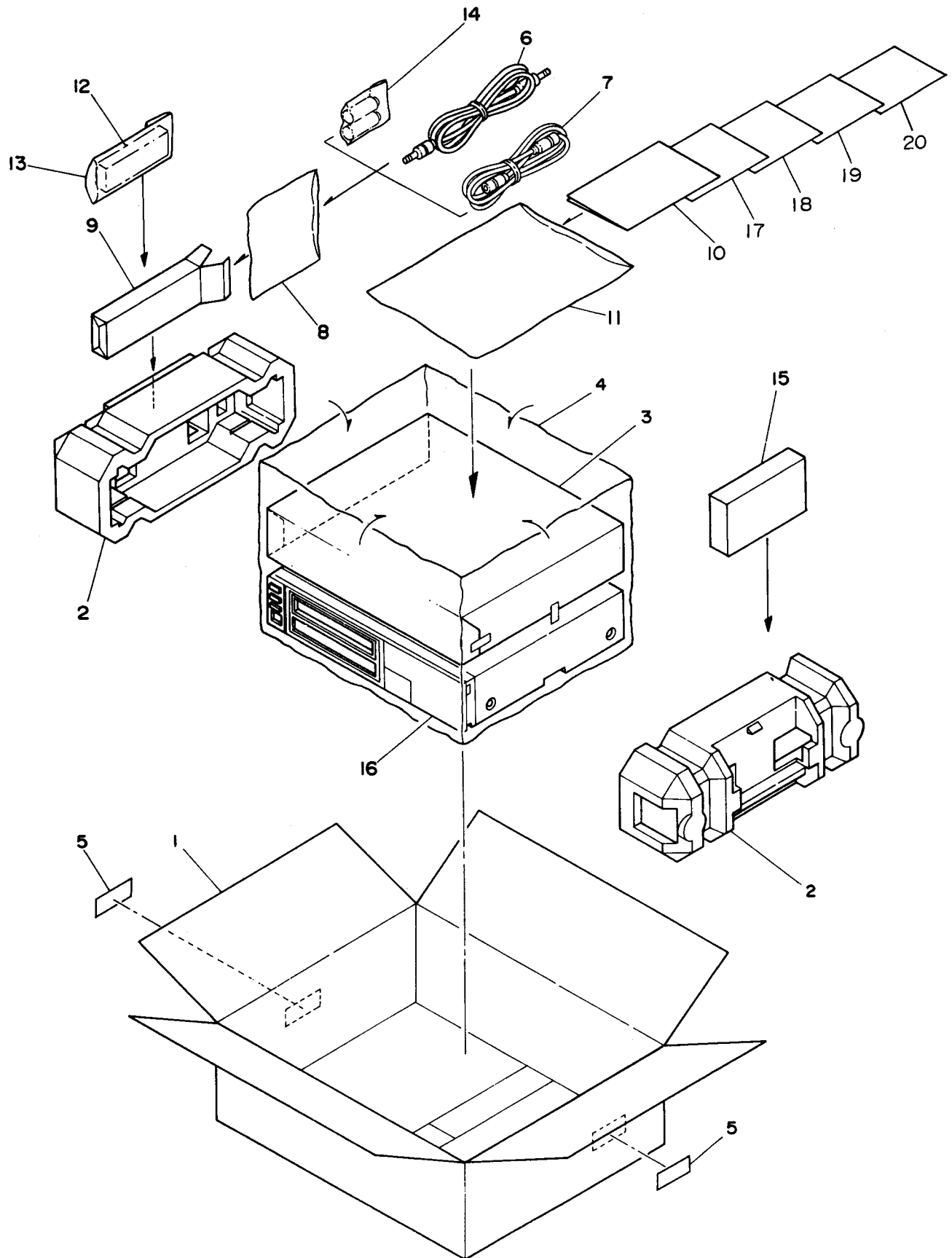


3.45 OVERALL WIRING DIAGRAM (HR-D755EK MODEL)

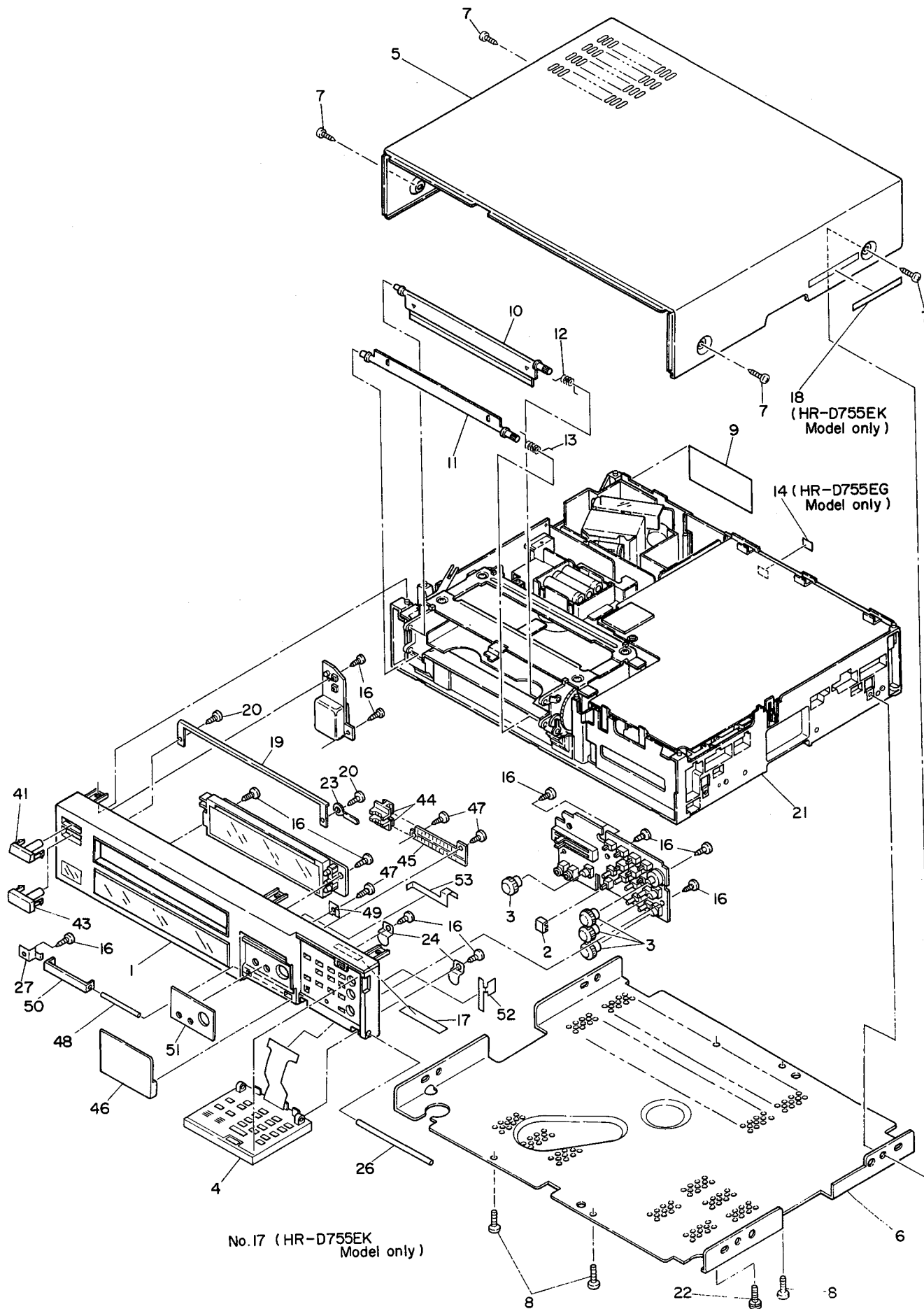


SECTION 4 EXPLODED VIEWS

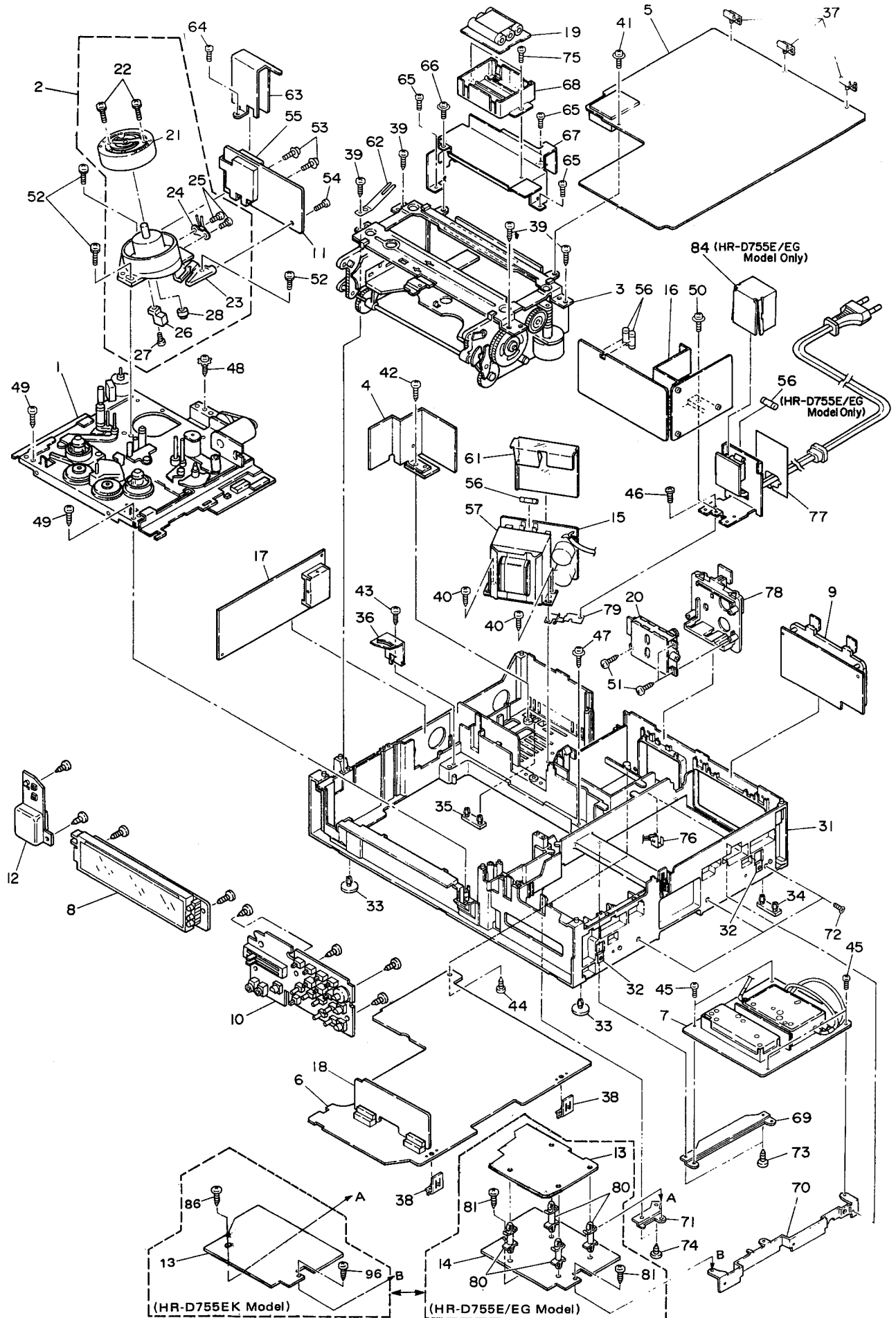
4.1 PACKING ASSEMBLY [M1]



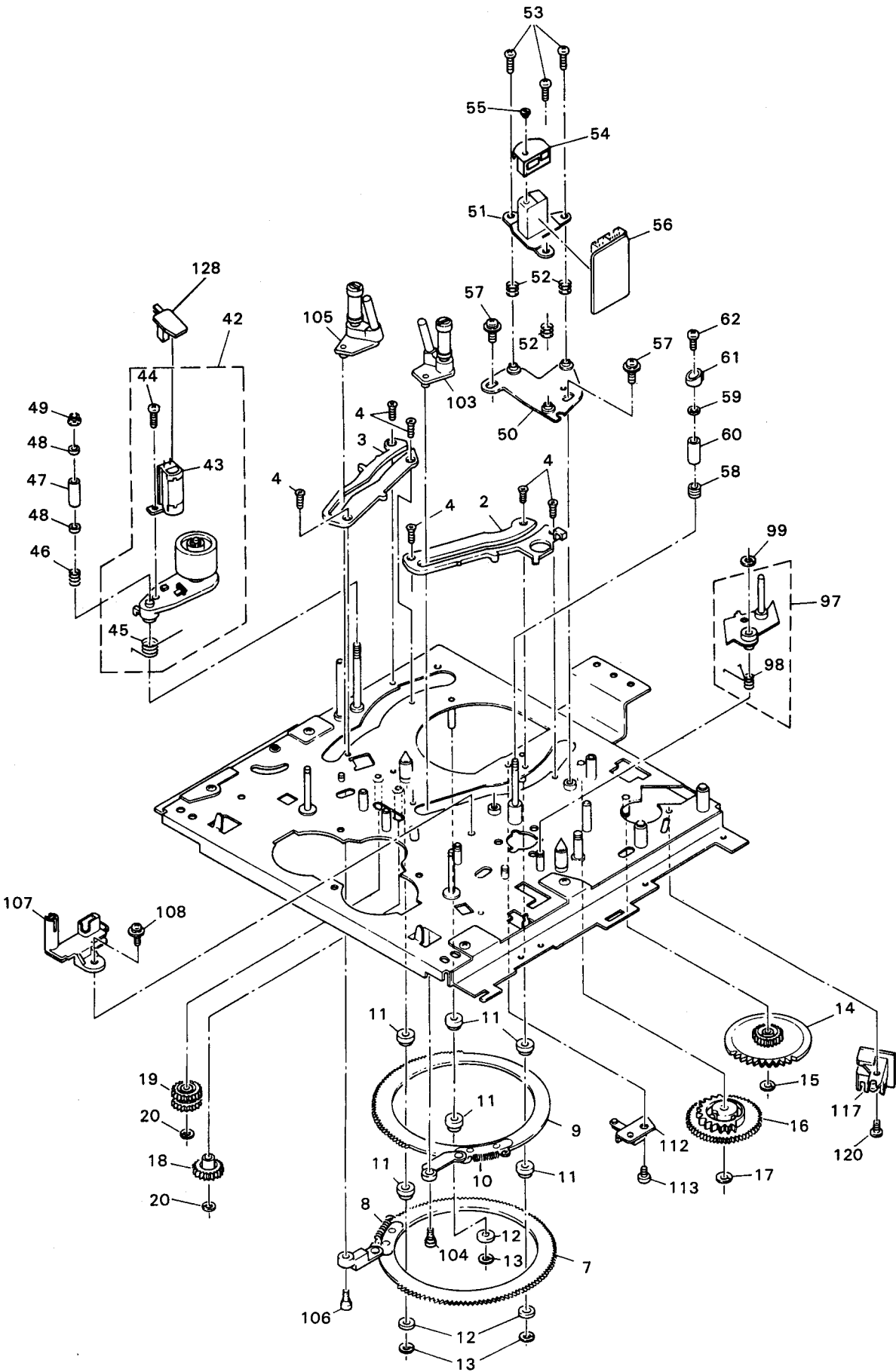
4.2 CABINET ASSEMBLY [M2]



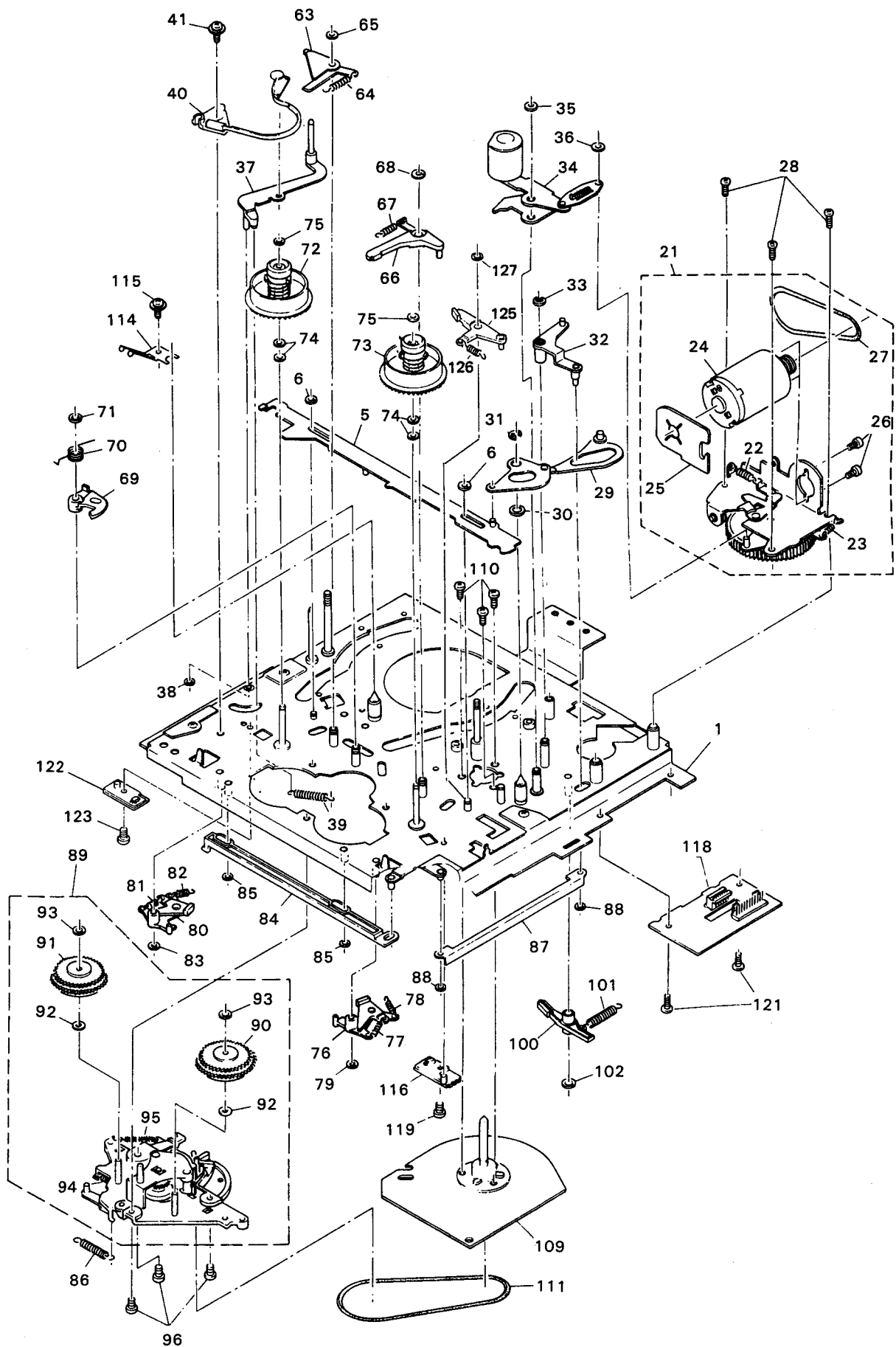
4.3 CHASSIS ASSEMBLY [M3]



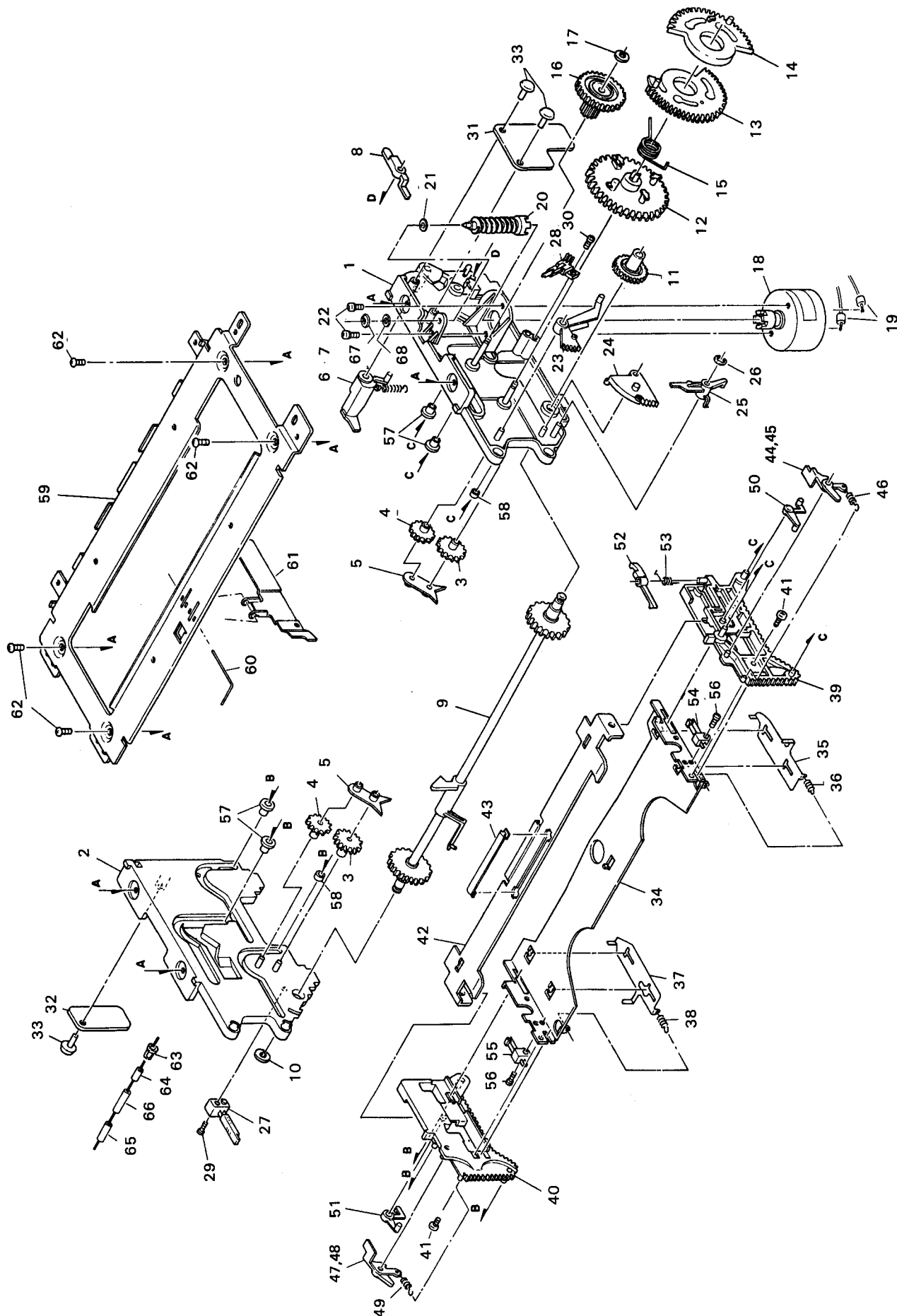
4.4 MECHANISM ASSEMBLY [M4]-1



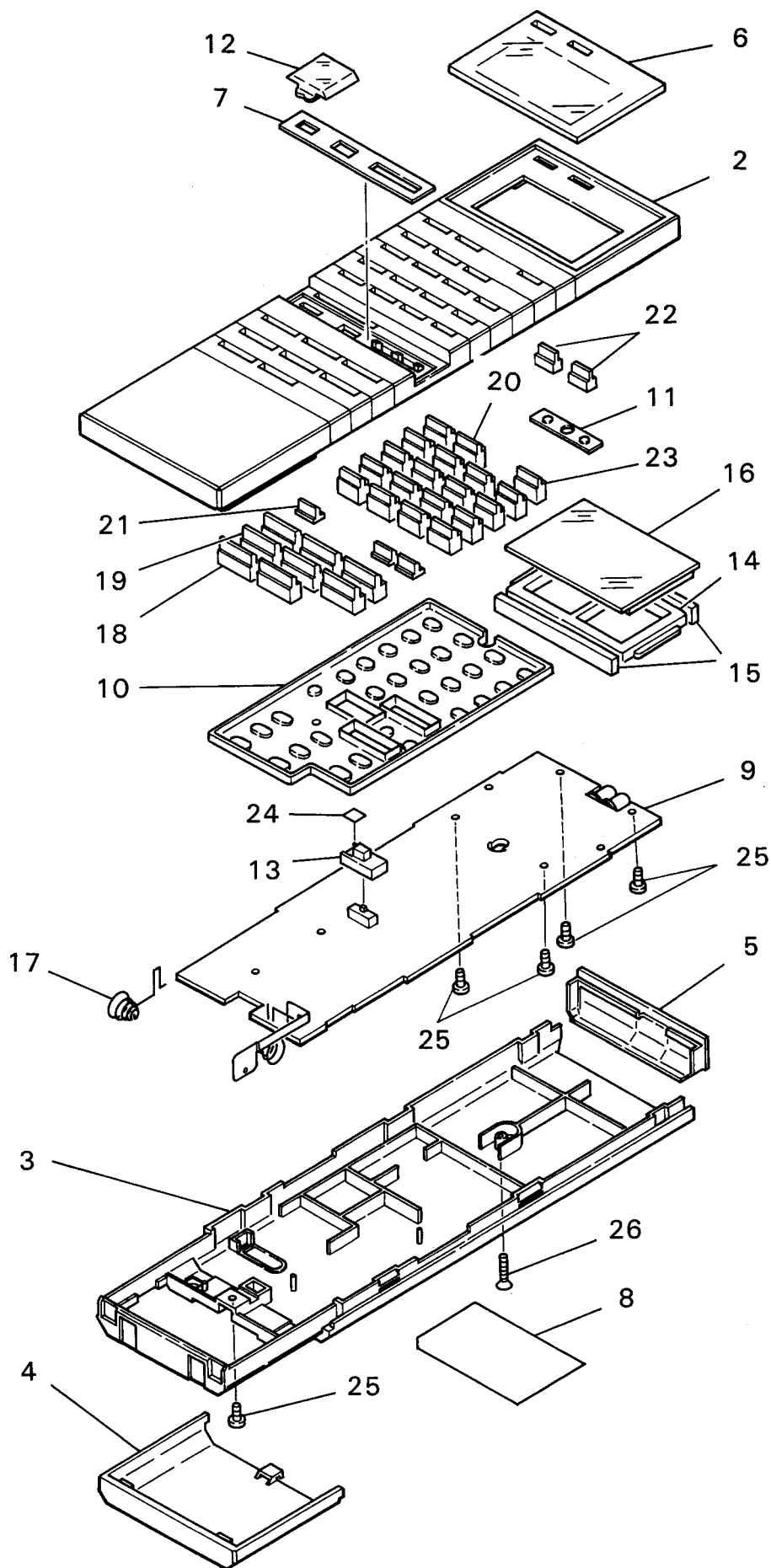
MECHANISM ASSEMBLY [M4]-2



4.5 CASSETTE HOUSING ASSEMBLY [M5]



4.6 REMOTE CONTROL UNIT [M6]



SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the  symbol are critical for safety. Replace only with specified part numbers.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

RESISTORS—All resistance values are in ohms (Ω), unless otherwise indicated.

k	: 1,000 (Kilo)
M	: 1,000,000 (Mega)
Chip R	: Chip Resistor
Chip VR	: Chip Variable Resistor
Comp. R	: Composition Resistor
CR	: Carbon Film Resistor
FR	: Fusible Resistor
MFR	: Metal Film Resistor
MPR	: Metal Plate Resistor
OMR	: Oxide Metal Film Resistor
PMR	: Precision Metal Film Resistor
UFR	: Unflammable Resistor
VR	: Variable Resistor (Potentiometer)
WR	: Wire Wound Resistor

CAPACITORS—All capacitance values are in μF , unless otherwise indicated.

pF	: $\mu\mu\text{F}$ (Pico farad)
C Cap	: Ceramic Capacitor
Chip Cap	: Chip Capacitor
Chip T Cap	: Chip Tantalum Capacitor
E Cap	: Electrolytic Capacitor
FM Cap	: Film Mica Capacitor
LL Cap	: Low Leak Current Electrolytic Capacitor
MM Cap	: Metalized Mylar Capacitor
MP Cap	: Metalized Paper Capacitor
MY Cap	: Mylar Capacitor
NP Cap	: Non-polar Capacitor
PC Cap	: Polycarbonate Capacitor
PP Cap	: Polypropylene Capacitor
PS Cap	: Polystyrol Capacitor
T Cap	: Tantalum Capacitor
TF Cap	: Thin Film Capacitor
TR Cap	: Trimmer Capacitor

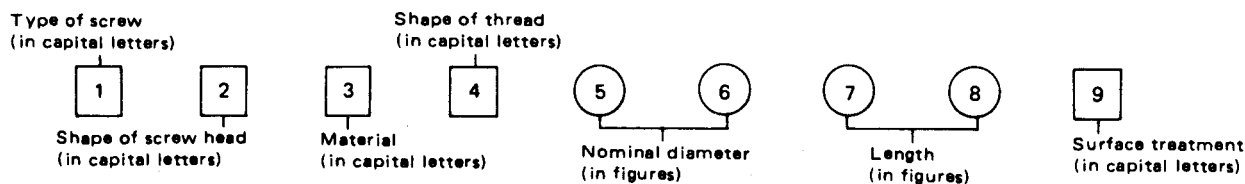
NOTES:

- [M] indicates mechanical symbol number.
- [2 digits] indicates circuit board symbol number.
- "X " indicates quantity per set.

5.1 STANDARD PART NUMBER CODING

5.1.1 Screw coding

Standard screw part numbers are as follows.

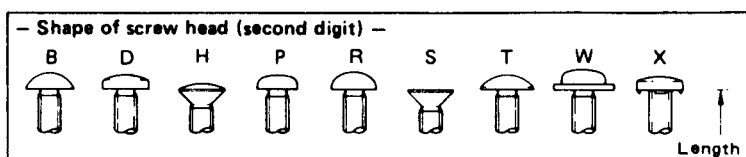
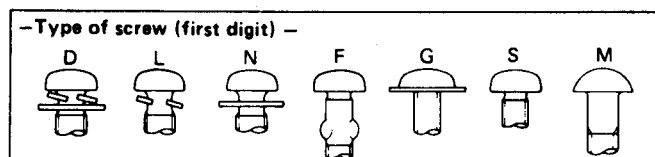


Type of screw (first digit)

- S Normal screws
- D Assembled machine screws (with plain and spring washers)
- L " (with spring washer)
- N " (with plain washer)
- F Feather screws
- G Washer head tapping screws
- M Wood screws

Shape of screw head (second digit)

- B Brazier head
- D Binding head
- H Oval countersunk head
- P Pan head
- R Round head
- S Flat head
- T Truss head
- W Washer head (machine screws)
- X Toothed head

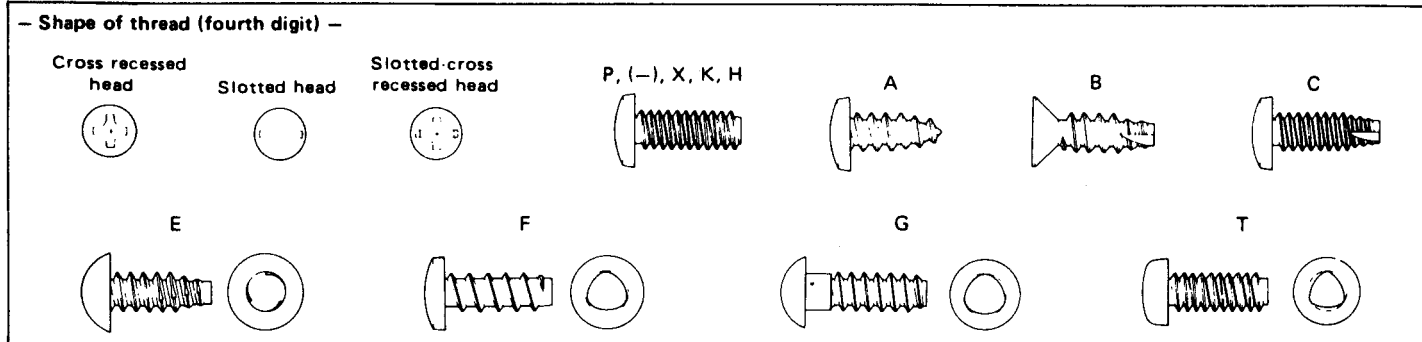


Material (third digit)

- S Steel
- E Stainless steel
- C Cast iron
- U Copper
- B Brass
- P Phosphor bronze
- N Nickel silver
- Y Cast brass
- A Aluminum
- Z Zinc alloy
- K Polycarbonate

Shape of thread (fourth digit)

- P Cross recessed head screws
- (-) Slotted head machine screws
- X Slotted-cross recessed head machine screws
- K Cross recessed head machine screws for precision equipment (type 1)
- H " (type 3)
- A Cross recessed head tapping screws (type 1)
- B " (type 2)
- C " (type 3)
- E Cross recessed head special tapping screws (brand : evertight)
- F " (brand : P-tight)
- T " (brand : taptight)
- G " (brand : taptight)



Nominal diameter (fifth and sixth digits)

The fifth and sixth digits indicate a nominal diameter or dimension. If the dimension exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

Length (seventh and eighth digits)

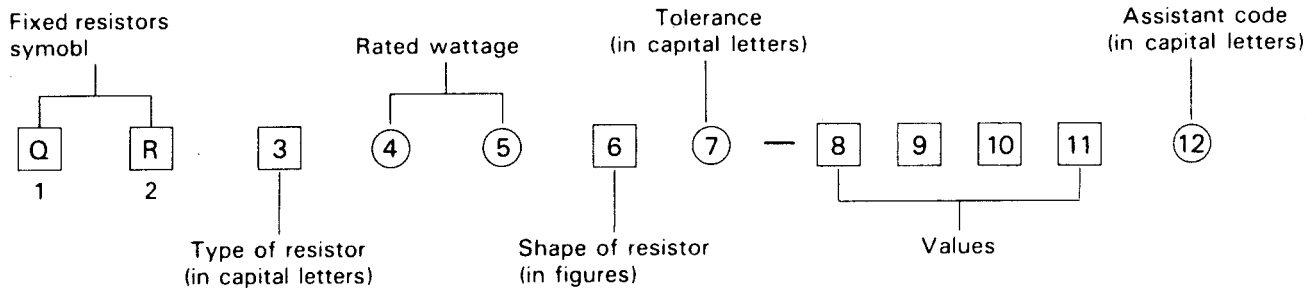
The seventh and eighth digits indicate length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

Surface treatment (ninth digit)

- Z Dichromate treatment after galvanizing (MFZn II-C)
- N Nickel plating (MFNi II, MFNi I)
- R Chromium plating (MBCr II, MBCr I)
- G Silver plating (SP4)
- B Black coating after plating
- F Blackening of iron (FB)
- M Blackening after galvanizing
- K Pickling of brass (PF2)
- P Phosphate treatment
- W Uni-chrome plating
- L Coated with transparent paint
- A Colored red after galvanizing (MFZn II-C)
- C Colored blue after galvanizing (MFZn II-C)
- T Colored green after galvanizing (MFZn II-C)
- V Colored purple after galvanizing (MFZn II-C)

5.1.2 Fixed resistor coding

Fixed resistor part numbers are as follows.



Type of resistor (third digit)	Rated wattage (fourth and fifth digits)	Tolerance (seventh digit)	Assistant code (twelfth digit)
C Composition resistors	A0 1/10 W	F $\pm 1\%$	A Small type
D Carbon film resistors	18 1/8 W	G $\pm 2\%$	B Small type
F Unflammable resistors	16 1/6 W	J $\pm 5\%$	S Small type
G Oxide metal film resistors	14 1/4 W	K $\pm 10\%$	Y Lead taping
H Fusible resistors	12 1/2 W	M $\pm 20\%$	Z Lead taping
M Metal plate resistors	01 1 W		
S Metal glazed resistors	02 2 W		
V Precision metal film resistors	03 3 W		
W Wire wound resistors	04 4 W		
X Metal film resistors	05 5 W		
Z Special resistors	06 6 W		
	07 7 W		
	75 7.5 W		
	08 8 W		
	10 10 W		
	15 15 W		
	A6 16 W		
	20 20 W		
	30 30 W		

Values (eighth – tenth or eleventh digits)

examples:

R47		0.47 Ω
4R7		4.7 Ω
470	 47×10^0	47 Ω
471	 47×10^1	470 Ω
472	 47×10^2	4.7 k Ω
473	 47×10^3	47 k Ω
474	 47×10^4	470 k Ω
475	 47×10^5	4.7 M Ω

QRV resistance shown by four digits:

4640	 464×10^0	464 Ω
4641	 464×10^1	4.64 k Ω
4642	 464×10^2	46.4 k Ω

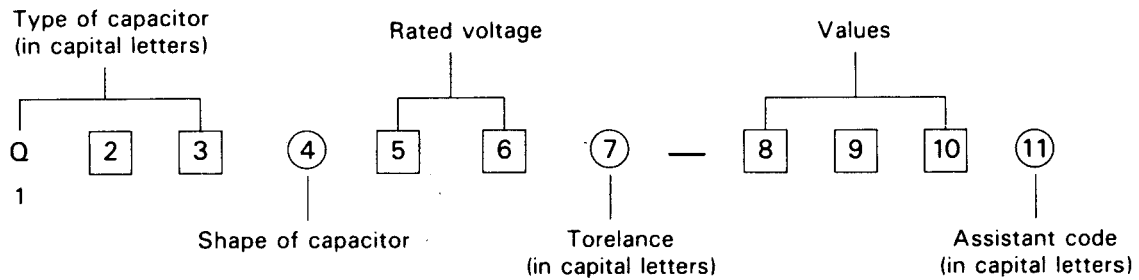
Shape of resistor (sixth digit)

Note:  indicates flame retardant resistor.

Type of resistor Shape of resistor	C	D	F	G	H	M	S	V	W	X
1										
2										
3										
4										
5									(L) type	
6										
7			Lug (B) type							
8			Lug (A) type					Chip		
9			Lug (C) type							

5.1.3 Fixed capacitor coding

Fixed capacitor part numbers are as follows.



Ceramic capacitors

Type of capacitor (first — third digits)		Shape of capacitor (fourth digit)				
Symbol	Characteristics	Mono-direction	Kink lead	Axial lead	Axial forming lead	Chip
QCC	Ceramic	1		4	5	
QCD	High capacitance					A
QCF	High capacitance	1,4	3			8,A
QCS	Temperature compensation	1	3	4	5	8,A
QCT	Temperature compensation	Special coding				
QCV	Ceramic			1	3	
QCX	Ceramic			1	3	
QCY	High capacitance	1,4	3	6	7	8,A
QCZ	Special type	Special coding				
QCB	Ceramic			B	C	

Electrolytic capacitors

Type of capacitor (first-third digits)		Shape of capacitor (fourth digit)				
Symbol	Characteristics	Tubular	Mono-direction	Anti-stress	Forming	Snap-in
QEB	Low leakage		4	5	6	
QEC	Low leakage		4,8,A	9,B	6,C	
QEE	Tantalum (normal)		4	5	6	
	Tantalum (small)		8			
QEF	Chip tantalum	8 (chip type)				
QEG	Low impedance		4			
QEK	Miniature type		4	5	6	
QEL	Small type		4	5	6	7
QEM	Small type		4,A	5	6	
QEN	Non-polar	2	4	5	6	
QEP	Non-polar (small)		4,A	5,B	6,C	
QER	Miniature type		4	5	6	
QET	Small type	2	4,A	5,B	6,C	7
QEU	Small type		4	5	6	
QEV	Small type		4		6	7
QEW	Normal	2	4	5	6	7

Paper film capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
		Tubular	Normal		Flame retardant	
Symbol	Characteristics		Mono-direction	Kink lead	Mono-direction	Kink lead
QFA	Metalized polypropylene				7	
QFE	Metalized mylar				5	
QFF	Film mica		4			
QFG	Polypropylene film		4	8		
QFH	Metalized mylar	2	4	3	5,7	6
QFJ	Mylar (special)		4			
QFK	Metalized mylar (small)				5	
QFM	Mylar	2	4	3,7	5	6
QFN	Mylar (small)		4	3		
QFP	Polypropylene		4	3,8		
QFS	Polystyrole	2	4	3		
QFV	Thin film		4	8		
QFZ	Special type	Special coding				

Rated voltage (fifth and sixth digits)

Fifth digit \ Sixth digit													
	A	B	C	D	E	F	G	H	J	K	V	W	X
0						3.15	4.0		6.3				
1	10		16	20	25		40	50	63	80	35		
2	100	125	160	200	250	315	400	500	630		350	450	600
3	1000	1250		2000				5000					

Tolerance (seventh digit)

A	+100 % -10 %	M	±20 %
F	±1 %	N	±30 %
G	±2 %	P	+100 % -0 %
H	+50 % -10 %	R	+30 % -10 %
J	±5 %	X	+40 % -20 %
K	±10 %	Z	+80 % -20 %

Values (eighth – tenth digits)

Example : Values are in picofarads

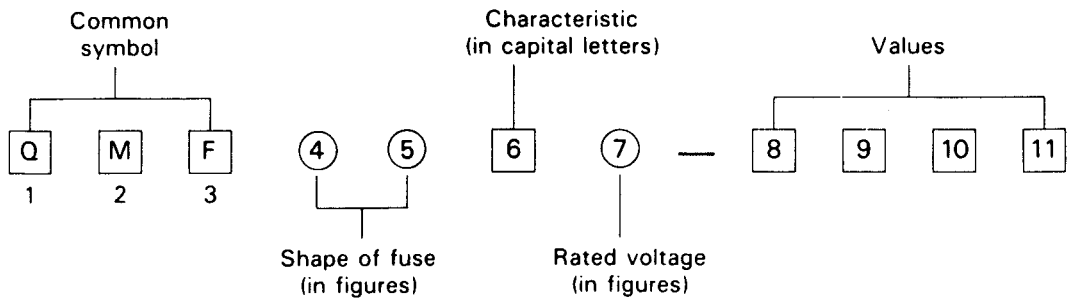
101	10 × 10 ¹	pF		100 pF
102	10 × 10 ²	pF		1,000 pF (0.001 μF)
103	10 × 10 ³	pF		10,000 pF (0.01 μF)
104	10 × 10 ⁴	pF		100,000 pF (0.1 μF)
105	10 × 10 ⁵	pF		1 μF
5R0				5.0 pF

Assistant code (eleventh digit)

G	Small size
Z	Lead taping
Y	Lead taping

5.1.4 Fuse coding

Standard fuse part numbers are as follows.



Shape of fuse (fourth and fifth digits)	Rated voltage (seventh digit)	Values (eighth-tenth or eleventh digits)
51 $\phi 5.2 \times 20$ mm	1 AC125 V	example:
60 $\phi 6.4 \times 30$ mm	2 AC250 V	R63 0.63 A
61 $\phi 6.35 \times 31.8$ mm	3 0.1 – 1 A : AC250 V	1R0 1.0 A
63 $\phi 6.4 \times 30$ mm with lead wires	1.25 – 6.3 A : AC125 V	2R5 2.5 A
66 $\phi 6.35 \times 31.8$ mm with lead wires		100 10 A
00 Special type		R315 0.315 A
		1R25 1.25 A

Characteristics (sixth digit)

Symbol	Fusing Current	Fusing Time	Remarks
A	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 – 10 sec.	
	400 %	0.15 – 3 sec.	
	1000 %	0.02 – 0.3 sec.	
B	210 %	Within 30 min.	Regular fusible type (for SEMKO, Europe)
	275 %	0.05 – 2 sec.	
	400 %	0.01 – 0.3 sec.	
C	135 %	Within 1 hr.	Regular fusible type (for UL, Japan)
	200 %	Within 2 min.	
E	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 – 10 sec.	
	400 %	0.15 – 3 sec.	
	1000 %	0.02 – 0.3 sec.	
J	135 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
M	135 %	Within 1 hr.	Regular fusible type (for UL)
	200 %	Within 2 min.	
R	160 %	Within 1 hr.	Regular fusible type
	200 %	Within 2 min.	
S	160 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
	700 % – 2000 %	Within 0.01 sec.	
U	135 %	Within 1 hr.	Anti-rush type (for UL)
	200 %	Within 2 min.	
	800 % – 2000 %	Within 0.01 sec.	

#	REF. NO.	PART NO.	PART NAME, DESCRIPTION

			PACKING ASSEMBLY [M1]
	1	PQ30786-45	PACKING CASE, E
		PQ30786-44	PACKING CASE, EG
		PQ30786-43	PACKING CASE, EK
	2	PQ30787B-2	CUSHION ASSEMBLY
	3	PQ41026-3	PROTECT SHEET, TOP COVER
	4	PQM30021-33	POLY BAG, E/EG
		PUP30320-17	POLY BAG, EK
	5	PUP40329	SERIAL NO. STICKER, X2, EG/EK
	6	PU56142-3	PIN CORD ASSEMBLY
Δ	7	PU59167-3	CABLE ASSEMBLY
Δ	OR	PU59168-3	CABLE ASSEMBLY
	8	QPGA020-02003	POLY BAG, E/EG
		PQM30023-8	POLY BAG, EK
	9	PQ41801-2	CASE
Δ	10	PU30425-856	INSTRUCTION BOOK, E
Δ		PU30425-852	INSTRUCTION BOOK, EG
Δ		PU30425-844	INSTRUCTION BOOK, EK
	11	QPGA025-03505	POLY BAG, E/EG
		PQM30023-5	POLY BAG, EK
Δ	12	PQ10355F	REMOCON UNIT, REF. [M6], INCL. 13, E
Δ		PQ10355C	REMOCON UNIT, REF. [M6], INCL. 13, EG
Δ		PQ10355A	REMOCON UNIT, REF. [6], INCL. 13, EK
	13	PQ10355-001	POLY BAG, REMOCON UNIT
	14	UM-3DJ2P	BATTERY, 2 CELLS
	15	PTE-30-101	CASSETTE TAPE
	16	—	CABINET ASS'Y, REF.[M2]
Δ	17	PU36158-1-1	DBP INF SHEET, EG
	18	BT-20069A	WARRANTY CARD, EG
	19	BT-20060	GUARANTY CARD, EK
	20	BT-20066	GUARANTY CARD, EK

			CABINET ASSEMBLY [M2]
Δ	1	PQ10312F	FRONT PANEL ASS'Y, INCL. 41—53,E
Δ		PQ10312E-7	FRONT PANEL ASS'Y, INCL. 41—53,EG
Δ		PQ10312D	FRONT PANEL ASS'Y, INCL. 41—53, EK
	2	PU35575	TIMER BUTTON
	3	PQ31130	VOLUME BUTTON, X4
	4	PQ31177F	MEMBRANE BUTTON ASS'Y, E
		PQ31177E	MEMBRANE BUTTON ASS'Y, EG
		PQ31177D	MEMBRANE BUTTON ASS'Y, EK
Δ	5	PQ10158-10	TOP COVER
Δ	6	PQ10221-1-4	BOTTOM COVER
	7	SDSA4014M	TAP SCREW, TOP COVER, X4
	8	SDSF3012R	TAP SCREW, BOTTOM COVER, X3
	9	—	RATING LABEL
	10	PQ10107BS-19	UPPER DOOR ASSEMBLY
	11	PQ30030-8-15	LOWER DOOR
	12	PQ40104-2	SPRING, UPPER DOOR
	13	PQ40472	SPRING, LOWER DOOR
Δ	14	PQ42257-2	LABEL, REAR, EG
	15	—	—
	16	SDSF2606Z	TAPPING SCREW, X13
Δ	17	PQ41700	LABEL, FRONT, EK
Δ	18	PU58020-4	CAUTION LABEL, EK
	19	PQ31270	WIRE HOLDER
	20	SDSF2606Z	TAP SCREW, WIRE HOLDER, X2
	21	—	CHASSIS
	22	SDSP3018R	SCREW, BOTTOM COVER
	23	PU49485-8	WIRE CLAMP
	24	PQ42327	F. STOPPER, X2

#	REF. NO.	PART NO.	PART NAME, DESCRIPTION
	25	—	—
	26	PU59141	SHAFT, MEMBRANE DOOR
	27	PU42590	STOPPER (B)
—FRONT PANNEL—			
	41	PQ31121D	BUTTON ASS'Y, POWER, E
		PQ31121C	BUTTON ASS'Y, POWER, EG
		PQ31415A	BUTTON ASS'Y, POWER, EK
	42	—	—
	43	PQ31122	EJECT BUTTON, E/EK
		PQ31122-2	EJECT BUTTON, EG
	44	PQ31123	SLIDE KNOB, X2
	45	PQ31124	SLIDE PLATE
	46	PQ31126C	DOOR ASSEMBLY, E
		PQ31126B	DOOR ASSEMBLY, EG
		PQ31126A-1	DOOR ASSEMBLY, EK
	47	SDSF2605Z	TAPPING SCREW, X3
	48	PU59160	SHAFT, DOOR
	49	PU59163	STOPPER(B)
	50	PU59159	BRACKET
	51	PQ31269-3	CAMERA PLATE, E/EK
		PQ31269-4	CAMERA PLATE, EG
	52	PU59139	EARTH BRACKET(A)
	53	PU59140	EARTH BRACKET(B)

			CHASSIS ASSEMBLY [M3]
	1	—	MECHANISM ASS'Y, REF. [M4]
	2	—	DRUM ASSEMBLY, REF. 21—28
	3	—	CASSETTE HOUSING ASS'Y, REF. [M5]
	4	—	POWER REG PWG ASS'Y, REF. [01]
	5	—	V/A/FMA PWB ASS'Y, REF. [02]
	6	—	T/M/S (1) PWB ASS'Y, REF. [03]
	7	—	TUNER/IF PWB ASS'Y, REF. [04]
	8	—	DISPLAY PWB ASS'Y, REF. [05]
	9	—	TERMINAL PWB ASS'Y, REF. [06]
	10	—	SWITCH PWB ASS'Y REF. [07]
	11	—	PRE/MDA PWB ASS'Y, REF. [08]
	12	—	IFR BOARD ASS'Y, REF. [33]
	13	—	VPS/REMAIN PWB ASS'Y, REF. [09], E/EG
			REMAIN PWB ASS'Y, REF. [38], EK
	14	—	DEMODO PWB ASS'Y, REF. [16], E/EG
	15	—	P. TRANS PWB ASS'Y, REF. [32]
	16	—	P. REG (2) PWB ASS'Y, REF. [34]
	17	—	PRE/REC PWP ASS'Y, REF. [35]
	18	—	JUNCTION PWB ASS'Y, REF. [36]
	19	—	BACK UP PWB ASS'Y, REF. [37]
	20	—	RF SW & RF CONVERTOR, REF. [04]
	21	PQ20013C-4	UPPER DRUM ASSEMBLY
	22	NDBP2608N	SCREW, UPPER DRUM ASS'Y, X2
	23	PQ20024U-28	L.D MOTOR ASS'Y, INCL. 21—28
	24	PU56202-7	HEATER
	OR	PU56202-8	HEATER
	25	SDBP2603N	SCREW, HEATER X2
	26	PU57619	PICK UP HEAD
	27	SPSH1735Z	MINI SCREW, PICK UP HEAD
	28	PU49483-3	COMUTATOR
	OR	PQ41596A	COMUTATOR ASS'Y
	29	—	—
	30	—	—
	31	—	CHASSIS
	32	PU58089	PLATE NUT, X2
	33	PQ41628	FOOT(1), X2

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		34	PQ41629	FOOT
		35	PQ41629-2	FOOT
		36	PQ41804-1-2	BRACKET
		37	PU58018-1-2	BOARD HINGE, V/A/F PWB, X3
		38	PU57663-1-1	BOARD HINGE, T/M/S PWB, X2
		39	SDSF3010Z	TAP SCREW, C. HOUSING, X4
Δ		40	SDSA4012Z	TAP SCREW, P TRANS, X4
		41	SDSP3008Z	SCREW, V/A/F
		42	SDSA4016Z	TAP SCREW, P. REG(1) PWB
		43	SDSA4012Z	TAP SCREW, BRACKET
		44	SDSF3010Z	TAP SCREW, T/M/S
		45	SDSP3006Z	SCREW, T/IF, X4
		46	SDSA3012R	TAP SCREW, BRACKET
		47	PQ40413	SPECIAL SCREW
		48	PQ14396	SPECIAL SCREW, MECHA
		49	SDSA4012Z	TAP SCREW, MECHA, X2
		50	DSPSP3008Z	SCREW, REG
		51	SDSF2608Z	TAP SCREW, RF CONV, X3
		52	LPSP3008Z	SCREW, DRUM, X3
		53	DPSP2606Z	SCREW, DRUM MDA, X2
		54	LPSP2606Z	SCREW, DRUM MDA
		55	PQ41717A-1	SHIELD COVER ASS'Y
		56	—	FUSE, REF. [01],[31],[32], X4, E/EG
		—	—	FUSE, REF. [01],[32], X3, EK
Δ		57	PU59177	POWER TRANSFORMER, E/EG
Δ		—	PU59178	POWER TRANSFORMER, EK
		58	—	—
		59	—	—
		60	—	—
Δ		61	PU36173	AC COVER
		62	PQ41556	ERATH PLATE
		63	PQ41724-1-5	SHIELD COVER
		64	SDST3006Z	TAP SCREW, S COVER
		65	SPST3006Z	SCREW, S COVER, X3
		66	DPSP3008Z	SCREW, S COVER
		67	PQ20371	SHIELD COVER
		68	PQ31347	BATTERY HOLDER
		69	PQ42523	BOARD BRACKET(A)
		70	PQ31344	BOARD BRACKET(B)
		71	PQ42525	SUB BRACKET
		72	SSSP3006M	SCREW, P BKT(B), X3
		73	SDSF3010Z	TAP SCREW, P BKT(A), X2
		74	SDSF3010Z	TAP SCREW, SUB BKT, X2
		75	SDSP2606Z	SCREW, B HOLDER, X2, E/EG
		76	PU59324A	EARTH WIRE ASS'Y
		77	PQ31429-5	BRACKET SHEET, E
		—	PQ31429	BRACKET SHEET, EG
		—	PQ30976	BRACKET SHEET, EK
		78	PQ30943-3-12	TERMINAL BOARD, E/EK
		—	PQ30943-1-12	TERMINAL BOARD, EG
		79	PQ41725	EARTH BRACKET
		80	PU58077-2	PC SUPPORT, DEMOD/VPS, X4, E/EG
		81	SDST3006Z	TAP SCREW, DEMODU, X2, E/EG
		82	—	OUTLET PWB ASS'Y, REF.[31], E/EG
		83	—	—
		84	PU36170	AC COVER, E/EG
		85	—	—
		86	SDSP3006Z	TAP SCREW, REMAIN PWB, X2

				MECHANISM ASSEMBLY [M4]
		1	—	MAIN DECK ASS'Y
		2	PQ30486	LOADING GUIDE (T)

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		3	PQ30487	LOADING GUIDE (S)
		4	PQ41269	SPECIAL SCREW, LOAD. GUIDES, X6
		5	PQ30130B-3	SLIDE PLATE ASS'Y
		6	PQM30017-8	SLIT WASHER, SLIDE PLATE, X2
		7	PQ40223B	LOADING RING ASS'Y (S), INCL. 8
		8	PQM30001-151	SPRING
		9	PQ40227B	LOADING RING ASS'Y (T), INCL. 10
		10	PQM30001-151	SPRING
		11	PQ40213	COLLAR, X6
		12	PQM30005-29	COLLAR, X3
		13	PQM30017-4	SLIT WASHER, LOADING RINGS, X3
		14	PQ30489	LOADING GEAR (1)
		15	PQM30017-12	SLIT WASHER, LOADING GEAR (1)
		16	PQ41354A	LOADING GEAR (2) ASS'Y
		17	PQM30017-12	SLIT WASHER, LOADING GEAR (2)
		18	PQ40219	CONNECT GEAR (1)
		19	PQ40220	CONNECT GEAR (2)
		20	PQM30017-8	SLIT WASHER, CONNECT GEARS, X2
		21	PUS36689X	D. GEAR BKT ASS'Y, INCL. 22—27
		22	PQM30001-129	SPRING
		23	PQM30001-130	SPRING
Δ		24	PQ40244A-2	MOTOR ASS'Y, MODE CONTROL
		25	—	MODE M PWB ASS'Y, REF. [30]
		26	SPSP3003Z	SCREW, MOTOR, X2
		27	PQM30003-14	BELT, MODE CONTROL
		28	SDSP2608Z	SCREW, DRIVE GEAR BRACKET, X3
		29	PQ40246A	LEVER ASS'Y
		30	PQM30005-41	COLLAR
		31	REE4000	E-RING, LEVER
		32	PQ41847A	CAM ARM ASS'Y
		33	PQM30017-12	SLIT WASHER, CAM ARM
		34	PQ40252B-4	PINCH ROLLER ARM ASS'Y
		35	PQM30017-12	SLIT WASHER, PINCH ROLLER ARM
		36	PQM30017-8	SLIT WASHER, PINCH ROLLER ARM
		37	PQ41364A	TENSION ARM ASS'Y
		38	PQM30017	SLIT WASHER, TENSION ARM
		OR	PQM30017-7	SLIT WASHER, TENSION ARM
		39	PQM30001-186	SPRING, BACK TENSION
		40	PQ41307B	TENSION BAND ASS'Y
		41	DPSP3010Z	SCREW, TENSION BAND
		42	PQ41374H	F.E.H. ARM ASS'Y, INCL. 43—45, 128
		43	PU51263-2	FULL ERASE HEAD
		OR	PU51263-3	FULL ERASE HEAD
		44	LPSP2004Z	SCREW, FULL ERASE HEAD
		45	PQ40427	SPRING
		46	PQM30002-112	SPRING
		47	PU53629-2	TAPE GUIDE, SUPPLY GUIDE POLE
		48	PQ40752	GUIDE FLANGE, X2
		49	PQ40353	NYLON NUT, ERASE HEAD ARM
		50	PQ41376A-2	HEAD BASE ASS'Y, A/C HEAD
		51	PU58036-2	A/C HEAD
		52	PU30080-49	SPRING, X3
		53	SPSP2608Z	SCREW, A/C HEAD, X3
		54	PU54557-1-4	SHIELD CAP
		55	HPSP2020N	SCREW, SHIELD CAP
		56	—	A/C HEAD BOARD ASS'Y, REF. [12]
		57	DPSP2608Z	SCREW, HEAD BASE, X2
		58	PQ41348-2	GUIDE FLANGE (T)
		59	PQ40268-2	GUIDE FLANGE
		60	PU53629-2	TAPE GUIDE, TAKE-UP GUIDE POLE
		61	PQ41346	GUIDE POLE CAP
		62	SDSP2006Z	SCREW, TAPE GUIDE
		63	PQ40274A-2	LOAD. BRAKE (S) ASS'Y, INCL. 64

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		64	PQM30001-175	SPRING
		65	PQM30017-12	SLIT WASHER, LOADING BRAKE (S)
		66	PQ40276A-2	LOAD. BRAKE (T) ASS'Y, INCL. 67
		67	PQM30001-171	SPRING
		68	PQM30017-12	SLIT WASHER, LOADING BRAKE (T)
		69	PQ41379A-1	GEAR LEVER ASS'Y (T)
		70	PQ41162-1-2	SPRING
		71	PQM30017-13	SLIT WASHER, GEAR LEVER
		72	PU57644-3	REEL DISK (S)
		73	PU57645-3	REEL DISK (T)
		74	Q03093-828	WASHER, X4
		75	PQM30017-5	SLIT WASHER, REEL DISKS, X2
		76	PQ40285A	MAIN BRK (T) ASS'Y, INCL. 77, 78
		77	PQM30001-135	SPRING
		78	PQM30001-136	SPRING
		79	PQM30017-12	SLIT WASHER, MAIN BRAKE (T)
		80	PQ40288A	MAIN BRK (S) ASS'Y, INCL. 81-82
		81	PQM30001-135	SPRING
		82	PQM30001-136	SPRING
		83	PQM30017-12	SLIT WASHER, MAIN BRAKE (S)
		84	PQ30133-1-5	MAIN BRAKE SLIDER
		85	PQM30017-8	SLIT WASHER, BRK SLIDER, X2
		86	PQM30001-178	SPRING
		87	PQ40291	PUSH PLATE
		88	PQM30017-8	SLIT WASHER, PUSH PLATE, X2
		89	PU57658B-4	C. MECHA ASS'Y, INCL. 90-95
		90	PU56043-1-4	CLUTCH (T)
		91	PU56044-2-5	CLUTCH (S)
		92	Q03093-827	WASHER, X2
		93	PQM30017-2	SLIT WASHER, CLUTCHES, X2
		94	PQM30001-140	SPRING
		95	PQM30001-139	SPRING
		96	SPSP3006Z	SCREW, CLUTCH MECHA, X3
		97	PQ41384B	GUIDE ARM ASS'Y, INCL. 98
		98	PQ41405	SPRING
		99	PQM30017-8	SLIT WASHER, GUIDE ARM
		100	PQ41389B	MOTOR BRAKE ASS'Y, INCL. 101
		101	PQM30001-187	SPRING
		102	PQM30017-12	SLIT WASHER, MOTOR BRAKE
		103	PQ40354H	POLE BASE (T) ASS'Y
		104	PQ40295	FLANGE SCREW, POLE BASE (T)
		105	PQ40357D	POLE BASE (S) ASS'Y
		106	PQ40295	FLANGE SCREW, POLE BASS (S)
		107	—	CASSETTE LED BOARD, REF. [15]
		108	DPSP3006Z	SCREW, CASSETTE LED BOARD
Δ		109	PU58105V	CAPSTAN MOTOR
		110	SDSP2603Z	SCREW, CAPSTAN MOTOR, X3
		111	PQM30003-10	BELT, REEL
		112	PU56930-2	BRUSH ASS'Y
		113	SPSP3003Z	SCREW, BRUSH
		114	PQ41282	EARTH PLATE
		115	DPSP3005N	SCREW
		116	—	TU REEL SENS. PWB ASS'Y, REF. [22]
		117	—	MODE SENS. PWB ASS'Y, REF. [14]
		118	—	D. TERMINAL PWB ASS'Y, REF. [20]
		119	SPST3008Z	TAP SCREW, TU REEL SENS. PWB
		120	DPSP3010Z	SCREW, MODE (LOAD) SENS PWB
		121	SDSP2608Z	SCREW, DECK TERMINAL BOARD, X2
		122	—	SUPPLY SENSOR PWB, REF. [21]
		123	SPST3008Z	TAP SCREW, SUPPLY SENSOR PWB
		124	—	—
		125	PQ40279B	SCH. BRK ASS'Y, INCL. 126, 127
		126	PQM30001-208	SPRING

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		127	PQM30017-12	SLIT WASHER
		128	—	FULL ERASE HEAD PWB, REF. [17]

				CASSETTE HOUSING ASSEMBLY [M5]
		—	PUS26805U	C. HOUSING ASS'Y, INCL. 1-68
		1	PQ30033D-4	GUIDE STAY (R) ASS'Y
		2	PQ30276B-3	GUIDE STAY (L) ASS'Y
		3	PQ40059	GEAR (1), LEFT AND RIGHT, X2
		4	PQ40060	GEAR (2), LEFT AND RIGHT, X2
		5	PQ40061	DOUBLE CAP, X2
		6	PQ40102A-1	DOOR GUIDE ASS'Y, INCL 7
		7	PUM30001-111	SPRING
		8	PQ40063	GUIDE LEVER, GUIDE STAY (R)
		9	PQ40103A	CONNECT GEAR ASS'Y
		10	PUM30017-11	SLIT WASHER, CONN. GEAR ASS'Y
		11	PQ40065	CAM GEAR (2), GUIDE STAY (R)
		12	PQ30028	CAM GEAR (1)
		13	PQ40066-1-2	LOADING SLIDE GEAR
		14	PQ40067-1-2	UL SLIDE GEAR, UNLOADING
		15	PQ40068-2	LIMITER SPRING, CAM GEAR (1)
		16	PQ40484	WORM WHEEL
		17	PUM30017-4	SLIT WASHER, WARM ASS'Y
	Δ	18	PQ40090A	MOTOR ASS'Y, CASS. MOTOR
		19	PU45811	FERRITE BEADS, MOTOR ASS'Y, X2
		20	PQ40091B	WORM ASS'Y
		21	Q03093-830	WASHER, WORM ASS'Y
		22	SPSP2604Z	SCREW, MOTOR ASS'Y, X2
		23	PQ40074	UPPER DOOR OPENER
		24	PQ40075-1-5	LOWER DOOR OPENER
		25	PQ40076-2	HOLD LEVER, LOWER DOOR OPENER
		26	REE2500X	E-RING, HOLD LEVER
		27	PU51259-3	LEAF SW, REC SAFETY, G. STAY (L)
		28	PU55377-2	END SW, CASS. LOAD END/EJECT END
		OR	PU55377-1-1	END SW, CASS. LOAD END/EJECT END
		29	SPSP2010Z	SCREW, LEAF SWITCH
		30	SBSE2610Z	TAPPING SCREW, END SWITCH
		31	—	CASS HOUSING PWB, REF. [18]
		32	—	END SENSOR BOARD, REF. [13]
		33	PU48973-3	STOPPER, FOR [13] & [18] PWB, X3
		34	PQ30031-1-3	CASSETTE HOLDER
		35	PQ40106B-1	SLIDE PLATE (R) ASS'Y, INCL. 36
		36	PUM30001-210	SPRING
		37	PQ40107B-1	SLIDE PLATE (L) ASS'Y, INCL. 38
		38	PUM30001-210	SPRING
		39	PQ10009-1-4	BRACKET (R)
		40	PQ10009-2-3	BRACKET (L)
		41	SPSP2003Z	SCREW, BRACKET (R/L), X2
		42	PQ30208	REINFORCEMENT
		43	PQ40479	GUARD, REINFORCEMENT
		44	PQ40108B-3	LOCK LEVER (R) ASS'Y, INCL. 45, 46
		45	PQM30019-10	PAD, LOCK LEVER (R)
		46	PUM30001-110	SPRING
		47	PQ40109B-3	LOCK LEVER (L) ASS'Y, INCL. 48, 49
		48	PQM30019-10	PAD, LOCK LEVER (L)
		49	PUM30001-110	SPRING
		50	PQ40081A	SW LEVER (R) ASS'Y, INSERT SW (R)
		51	PQ40081B	SW LEVER (L) ASS'Y, INSERT SW (L)
		52	PQ40083-1-4	LID OPENER, BRACKET (R)
		53	PQ40084-1-2	TORSION SPRING, LID OPENER
		54	PU55378	INSERT SW (R), CASS IN DET
		OR	PU55378-1-1	INSERT SW (R), CASS IN DET

# Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
	55	PU55378-2	INSERT SW (L), CASS IN DET
	OR	PU55378-2-1	INSERT SW (L), CASS IN DET
	56	SPSP1704Z	SCREW, INSERT SW (R/L), X2
	57	PQ40086	ROLLER, GUIDE STAY (R/L), X4
	58	PQ40087-2	MINI ROLLER, GUIDE STAY (R/L), X2
	59	PQ20043	ROOF PLATE
	60	PQ40440-1-1	ROD, ROOF PLATE
	61	PQ40478-1-3	UPPER DOOR STOPPER
	62	SBSE2608Z	TAPPING SCREW, ROOF PLATE, X4
	63	PQ40299	WIRE CAP, GUIDE STAY (L)
	64	QXT629H-015	UL TUBE
	65	QXT329H-035	UL TUBE
	66	QXTF253-040	UL TUBE
	67	PUM30017	SLIT WASHER, WORM ASS'Y
	68	Q03093-838	WASHER, WORM ASS'Y

REMOTE CONTROL UNIT [M6]

1	—	REMOCON UNIT, REF. [M1]
2	PU36175-4	TOP CASE, E
	PU36175-2	TOP CASE, EG
	PU36175	TOP CASE, EK
3	PQ31448	BOTTOM CASE,
4	PQ31449	BATTERY CAP
5	PU36179-3	WINDOW
6	PU36178	L.C.D WINDOW, E/EK
	PU36178-2	L.C.D WINDOW, EG
7	PU36194	PLATE, E, EK
	PU36194-2	PLATE, EG
8	PU36139-8	REMOCON LABEL, E
	PU36139-7	REMOCON LABEL, EG
	PU36139	REMOCON LABEL, EK
9	—	REMOCON PWB ASS'Y, REF. [45]
10		REBBER SHEET, LARGE
11		RUBBER SHEET, SMALL
12		SLIDE COVER
13		SLIDE KNOB, DIRECT/STORE SW
14		SPACER
15		CONNECTOR, X2
16		L.C.D
17		BATTERY TERMINAL
18		BUTTON, (GRAY), X7
19		BUTTON, REC (RED)
20		BUTTON, (BLACK), X18
21		BUTTON, (BLACK), X3
22		BUTTON, (BLACK), X2
23		BUTTON, POWER (BLUE)
24		LABEL, SLIDE KNOB
25		SCREW, X5
26		SCREW, BOTTOM CASE

# Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		PU22345A1-02	POWER REG (1) BOARD ASS'Y [01]
	Q1	—	—
	Q2	2SD1275P,Q	TRANSISTOR
	Q3	—	—
	Q4	2SD1275P,Q	TRANSISTOR
	Q5	2SD637R,S	TRANSISTOR
	Q6	—	—
	Q7	—	—
	Q8	2SD637R,S	TRANSISTOR
	Q9	—	—
	Q10	2SD1275P,Q	TRANSISTOR
	Q11	2SD637R,S	TRANSISTOR
	Q12	2SD1761(DE)	TRANSISTOR
	Q13	2SD637R,S	TRANSISTOR
	Q14	2SC3243D,E	TRANSISTOR
	Q15	2SB10150,Y	TRANSISTOR
	D1	—	—
	D2	10E2	DIODE
	D3	—	—
	D4	10E2	DIODE
	D5	HZ12B3L	ZENER DIODE
	D6	—	—
	D7	—	—
	D8	11E2	DIODE
	D9	HZ6C1	ZENER DIODE
	D10	11E2	DIODE
	D11	HZ6C1L	ZENER DIODE
	D12	11E2	DIODE
	D13	11E2	DIODE
	D14	HZ15-2	ZENER DIODE
	D15	MA150	DIODE
	D16	HZ15-2	ZENER DIODE
	D17	11E2	DIODE
	D18	11E2	DIODE
	D19	11E2	DIODE
	D20	11E2	DIODE
	D21	MA27TB	DIODE
	D22	HZ6C1L	ZENER DIODE
	D23	MA27TA	DIODE
	DS1	D5SB10	DIODE ARRAY
	OR	RBV601	BRIDGE DIODE
	R1	QRD181J-272	CR
	R2	QRD181J-102	CR
	R3	QRD181J-681	CR
	R4	QRD181J-272	CR
	R5	QRD181J-103	CR
	R6	QRD181J-682	CR
	R7	QRD181J-562	CR
	R8	QRD181J-562	CR
	R9	QRD181J-272	CR
	R10	QRD181J-561	CR
	R11	QRD181J-331	CR
	R12	QRD181J-681	CR
	R13	QRD181J-271	CR
	R14	QRD181J-221	CR
	R15	QVZ3521-221	VR, DC 5V ADJ
	R16	QRD181J-102	CR
	R17	QRD122J-392	CR
	R18	QRG019J-222S	OMR
	R19	QRD181J-472	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION	#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R20	QRD181J-473	CR			IC5	BA225	INTEGRATED CIRCUIT
		R21	QVZ3521-222	VR, DC 9V ADJ			IC6	M51458P	INTEGRATED CIRCUIT
		R22	QRD181J-331	CR			IC7	7VT12	INTEGRATED CIRCUIT
		R23	QRG019J-181S	OMR			IC8	PU22282A	Y. MODULE PWB ASS'Y
Δ		R24	PU58802-330	POSISTOR			IC9	NJM2207S	INTEGRATED CIRCUIT
		R25	QRD181J-102	CR			IC10	PU22046A	C. MODULE PWB ASS'Y
		R26	QRD181J-102	CR			IC11	AN3592K	INTEGRATED CIRCUIT
		R27	QRD181J-102	CR			IC12	BA7007	INTEGRATED CIRCUIT (E/EG)
		R28	QRD181J-221	CR					
		R29	QRD181J-102	CR			Q1	2SC1740S(QRS)	TRANSISTOR
		C1	QFK52AK-473	MM CAP			Q2	2SA933S	TRANSISTOR
		C2	QEMB1EM-108	E CAP			Q3	2SC1740S(QRS)	TRANSISTOR
		C3	QCF31HP-103	C CAP			Q4	2SC1740S(QRS)	TRANSISTOR
		C4	QEH51EM-338	E CAP			Q5	2SA933S	TRANSISTOR
		C5	QEMC1CM-107	E CAP			Q6	2SC1740S(QRS)	TRANSISTOR
		C6	QEMC1CM-107	E CAP			Q7	2SC2021Q,R,S	TRANSISTOR
		C7	QEMC1CM-107	E CAP			Q8	2SC1740S(QRS)	TRANSISTOR
		C8	QEMB1CM-228	E CAP			Q9	DTC124ES	D TRANSISTOR
		C9	QEMC1VM-336	E CAP			Q10	DTC144ES	D TRANSISTOR
		C10	QEMC1EM-476	E CAP					
		C11	QETB1JM-107	E CAP			Q11	DTC124F	D TRANSISTOR
		C12	QEMB1JM-227	E CAP			Q12	DTC124F	D TRANSISTOR
		C13	QEMB1HM-227	E CAP			Q13	2SC1740S(QRS)	TRANSISTOR
		C14	QETB1HM-107	E CAP			Q14	DTC114ES	D TRANSISTOR
		C15	—	—			Q15	DTC144WS	D TRANSISTOR
		C16	—	—			Q16	DTC144WS	D TRANSISTOR
		C17	—	—			Q17	DTC144WS	D TRANSISTOR
		C18	QCF31HP-222	C CAP			Q18	DTC124ES	D TRANSISTOR
		C19	—	—			Q19	—	—
		C20	QCF31HP-103	C CAP			Q20	DTC124EF	D TRANSISTOR
		C21	QCF31HP-222	C CAP					
		CN1	PU58844-110	CAP HOUSING			Q21	2SC2021Q,R,S	TRANSISTOR
		CN2	PU58844-105	CAP HOUSING			Q22	2SC1740S(QRS)	TRANSISTOR
		CN3	PU58844-104	CAP HOUSING			Q23	2SC1740S(QRS)	TRANSISTOR
		CN4	PU43351-103	CAP HOUSING			Q24	2SC1740S(QRS)	TRANSISTOR
		CN5	PU50597-4	CAP HOUSING			Q25	2SA933S	TRANSISTOR
		CN6	PU43351-102	CAP HOUSING			Q26	2SC1740S(QRS)	TRANSISTOR
		CN7	PU58844-102	CAP HOUSING			Q27	2SC1740S(QRS)	TRANSISTOR
		CN8	—	—			Q28	2SC1740S(QRS)	TRANSISTOR
		CN9	PU58844-102	CAP HOUSING			Q29	2SA933S	TRANSISTOR
							Q30	2SA933S	TRANSISTOR
Δ		HD1	PU57505	FUSE HOLDER, X4, F2, F3			Q31	2SC1740S(QRS)	TRANSISTOR
		TP	PU55774	TEST PIN, TP1, 2, GND			Q32	—	—
Δ		HTS1	PQ30785	HEAT SINK			Q33	DTC124ES	D TRANSISTOR
		SCR1	DPSP3006Z	SCREW, X3			Q34	DTC124ES	D TRANSISTOR
		SCR2	DPSP3008Z	SCREW, X4, FOR Q2, 4, 10, 12			Q35	DTC144WS	D TRANSISTOR
THE FOLLOWING FUSE ARE NOT INCLUDED IN PU22345A1-02.							Q36	2SC1740S(QRS)	TRANSISTOR
Δ		F2	QMF51E2-2R5	FUSE			Q37	2SC1740S(QRS)	TRANSISTOR
Δ		F3	QMF51E2-R80	FUSE			Q38	2SC1740S(QRS)	TRANSISTOR
*****							Q39	DTC114ES	D TRANSISTOR
			PU11444A-01	V/A/F BOARD ASS'Y [02], (E/EG)			Q40	DTC114ES	D TRANSISTOR
			PU11444D-01	V/A/F BOARD ASS'Y [02], (EK)					
—VIDEO SECTION—							Q41	DTC114ES	D TRANSISTOR
		IC1	MSM6967RS	INTEGRATED CIRCUIT			Q42	DTC144WF	D TRANSISTOR
		IC2	MSM6989RS	INTEGRATED CIRCUIT			Q43	DTA114EF	D TRANSISTOR
		IC3	BA7021	INTEGRATED CIRCUIT			Q44	DTA114ES	D TRANSISTOR
		IC4	TA7374P	INTEGRATED CIRCUIT			Q45	2SA937	TRANSISTOR
							Q46	DTC144WS	D TRANSISTOR
							Q47	—	—
							Q48	—	—
							Q49	—	—
							Q50	2SC1740S(QRS)	TRANSISTOR
							Q51	2SC1740S(QRS)	TRANSISTOR
							Q52	2SC1740S(QRS)	TRANSISTOR
							Q53	2SC1740S(QRS)	TRANSISTOR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
Q54			DTC124ES	D TRANSISTOR
Q55			—	—
Q56			2SC1740S(QRS)	TRANSISTOR (E/EG)
Q57			—	—
Q58			DTC124ES	D TRANSISTOR
Q59			2SC1740S(QRS)	TRANSISTOR
Q60			2SC1740S(QRS)	TRANSISTOR
Q61			—	—
Q62			—	—
Q63			DTC124ES	D TRANSISTOR
Q64			2SC2021Q,R,S	TRANSISTOR
Q65			DTA124ES	D TRANSISTOR
Q66			DTA124ES	D TRANSISTOR
Q67			DTC144WF	D TRANSISTOR
Q68			—	—
Q69			DTC124EF	D TRANSISTOR
D1			1SS133	DIODE
D2			1SS133	DIODE
D3			1SS133	DIODE
D4			1SS133	DIODE
D5			1SS133	DIODE
D6			1SS133	DIODE
D7			1SS133	DIODE
D8			1SS133	DIODE
D9			1SS133	DIODE
D10			1SS133	DIODE
D11			1SS133	DIODE
D12			1SS133	DIODE
D13			1SS133	DIODE
D14			OA90	DIODE
D15			OA90	DIODE
D16			1SS133	DIODE
D17			1SS133	DIODE
D18			1SS133	DIODE
D19			1SS133	DIODE
D20			1SS133	DIODE
D21			—	—
D22			1SS133	DIODE
D23			1SS133	DIODE
D24			1SS133	DIODE
D25			1SS133	DIODE
D26			1SS133	DIODE
D27			1SS133	DIODE
D28			—	—
D29			1SS133	DIODE
D30			1SS133	DIODE
D31			1SS133	DIODE (E/EG)
D32			1SS133	DIODE
D33			1SS133	DIODE
D34			1SS133	DIODE (E/EG)
D35			1SS133	DIODE
D36			1SS133	DIODE
D37			1SS133	DIODE
D38			1SS133	DIODE
D39			1SS133	DIODE
D40			1SS133	DIODE
D41			1SS133	DIODE
D42			1SS133	DIODE
D43			1SS133	DIODE
D44			1SS133	DIODE
D45			1SS133	DIODE (E/EG)
D46			1SS133	DIODE (E/EG)
D47			1SS133	DIODE
D48			1SS133	DIODE
D49			1SS133	DIODE (E/EG)
D50			—	—

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
D51			1SS133	DIODE
D52			—	—
D53			1SS133	DIODE
D54			1SS133	DIODE
D55			1SS133	DIODE
D56			1SS133	DIODE
D57			1SS133	DIODE
D58			1SS133	DIODE
D59			1SS133	DIODE (E/EG)
D60			—	—
D61			—	—
D62			1SS133	DIODE
R1			QRD161J-222	CR
R2			QRD161J-222	CR
R3			QRD161J-472	CR
R4			QRD162J-562	CR
R5			—	—
R6			QRD161J-472	CR
R7			QRD161J-331	CR
R8			QRD161J-681	CR
R9			QRD161J-122	CR
R10			QRD161J-102	CR
R11			QRD161J-122	CR
R12			QRD161J-153	CR
R13			QRD161J-223	CR
R14			QRD161J-681	CR
R15			QRD161J-561	CR
R16			QRD161J-681	CR
R17			QRD161J-681	CR
R18			QRD161J-222	CR
R19			QRD161J-222	CR
R20			QRD161J-393	CR
R21			QRD161J-473	CR
R22			QRD161J-122	CR
R23			QVZ3514-682	VR, 0.5H DELAY
R24			QRD161J-822	CR
R25			QRD161J-102	CR
R26			QRD161J-104	CR
R27			QRD161J-223	CR
R28			QRD161J-104	CR
R29			QRD161J-332	CR
R30			QRD161J-332	CR
R31			QRD161J-681	CR
R32			QRD161J-122	CR
R33			QRD161J-331	CR
R34			QRD161J-273	CR
R35			QRD161J-223	CR
R36			QRD161J-103	CR
R37			QRD161J-333	CR
R38			QRD161J-222	CR
R39			QRD161J-222	CR
R40			QRD161J-272	CR
R41			QRD161J-681	CR
R42			QRD161J-562	CR
R43			QRD161J-390	CR
R44			QRD161J-152	CR
R45			QVZ3514-102	VR, Y NR BAL
R46			QRD161J-392	CR
R47			QRD161J-222	CR
R48			QRD161J-103	CR
R49			QRD161J-152	CR
R50			QRD161J-471	CR
R51			QRD161J-332	CR
R52			QRD161J-471	CR
R53			QRD161J-103	CR
R54			QRD161J-103	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R55			QRD161J-222	CR
R56			QRD161J-103	CR
R57			QVZ3514-472	VR, Y NR GAIN
R58			QRD161J-184	CR
R59			QRD161J-152	CR
R60			—	—
R61			QRD161J-223	CR
R62			QRD161J-562	CR
R63			QRD161J-225	CR
R64			QRD161J-475	CR
R65			QRD161J-335	CR
R66			QRD161J-102	CR
R67			QRD161J-822	CR
R68			QRD161J-562	CR
R69			QRD161J-152	CR
R70			—	—
R71			QRD161J-562	CR
R72			—	—
R73			QRD162J-391	CR
R74			QRD161J-181	CR
R75			QRD162J-102	CR
R76			QRD161J-102	CR
R77			—	—
R78			QRD162J-103	CR
R79			QRD162J-103	CR
R80			QRD161J-222	CR
R81			QRD161J-471	CR
R82			QRD161J-153	CR
R83			QRD161J-222	CR
R84			QRD161J-103	CR
R85			QRD161J-473	CR
R86			QRD161J-824	CR
R87			QRD161J-684	CR
R88			QRD161J-750	CR
R89			QRD161J-222	CR
R90			QRD161J-102	CR
R91			QRD161J-102	CR
R92			QRD181J-391	CR
R93			QRD161J-103	CR
R94			QRD161J-103	CR
R95			QRD161J-154	CR
R96			QRD161J-154	CR
R97			QRD161J-472	CR
R98			QRD161J-562	CR
R99			QRD161J-562	CR
R100			QRV143F-1542	CMR
R101			QRV143F-1042	CMR
R102			QRD161J-103	CR
R103			QRD162J-103	CR
R104			QRV143F-1182	CMR
R105			QRV143F-1372	CMR
R106			QRD161J-222	CR
R107			QRD162J-181	CR
R108			QRD161J-102	CR
R109			QRD161J-681	CR
R110			QRD161J-272	CR
R111			QRD161J-181	CR
R112			QRD161J-682	CR
R113			—	—
R114			—	—
R115			QRD161J-103	CR
R116			QRD161J-272	CR
R117			QRD161J-271	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R118			QRD161J-561	CR
R119			—	—
R120			QRD161J-563	CR
R121			QRD161J-221	CR
R122			QRD161J-391	CR
R123			QRD161J-122	CR
R124			QRD161J-473	CR
R125			QRD161J-393	CR
R126			QRD161J-122	CR
R127			QRD161J-102	CR
R128			QRD161J-471	CR
R129			QRD161J-152	CR
R130			QRD161J-682	CR
R131			QRD161J-181	CR
R132			QRD161J-223	CR
R133			QRD161J-102	CR
R134			QRD161J-331	CR
R135			QRD161J-391	CR
R136			QRD161J-393	CR
R137			QRD161J-822	CR
R138			QRD161J-103	CR
R139			QRD161J-103	CR
R140			QRD161J-562	CR
R141			—	—
R142			—	—
R143			—	—
R144			—	—
R145			QRD161J-103	CR
R146			QRD161J-393	CR
R147			QRD161J-332	CR
R148			QRD161J-103	CR
R149			QVZ3514-473	VR, SW POINT
R150			QVZ3513-223	VR, H DISCRI
R151			QVZ3514-684	VR, LP REV SLOW TRACK
R152			QVZ3514-474	VR, LP FWD SLOW TRACK
R153			QVZ3514-105	VR, SP SLOW TRACKING
R154			—	—
R155			—	—
R156			QRD161J-223	CR
R157			QRD161J-472	CR
R158			QRD161J-154	CR
R159			QRD161J-221	CR
R160			QVZ3514-473	VR, CH SET DET
R161			QRD161J-393	CR
R162			QRD161J-222	CR
R163			QRD161J-561	CR
R164			QRD161J-561	CR
R165			QRD161J-223	CR
R166			QRD161J-393	CR
R167			QRD161J-821	CR
R168			QVZ3514-222	VR, INVERT COLOR LEVEL
R169			QRD161J-222	CR
R170			QRD161J-272	CR
R171			—	—
R172			QRD161J-821	CR
R173			QRD161J-473	CR
R174			QRD161J-473	CR
R175			QRD161J-473	CR
R176			QRD161J-104	CR
R177			QRD161J-123	CR
R178			QRD161J-391	CR
R179			QVZ3514-223	VR, VXO
R180			QRD161J-274	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R181			QRD161J-473	CR
R182			QRD161J-472	CR
R183			QRD161J-332	CR
R184			QRD161J-122	CR
R185			QRD161J-222	CR
R186			—	—
R187			QRD161J-102	CR (E/EG)
R188			QRD161J-154	CR (E/EG)
R189			QRD161J-683	CR (E/EG)
R190			QRD161J-182	CR (E/EG)
R191			QVZ3514-102	VR, SECAM DET (E/EG)
R192			QRD161J-103	CR (E/EG)
R193			QRD161J-562	CR (E/EG)
R194			QRD161J-333	CR (E/EG)
R195			QRD161J-393	CR (E/EG)
R196			QRD161J-102	CR (E/EG)
R197			QRD161J-183	CR (E/EG)
R198			QRD161J-102	CR
R199			QRD161J-822	CR (E/EG)
R501			QRD161J-561	CR
R502			QRD161J-223	CR
R503			QRD161J-103	CR
R504			QRD161J-103	CR
R505			QRD161J-103	CR
R506			—	—
R507			—	—
R508			—	—
R509			QRD161J-222	CR
R510			QRD161J-102	CR
R511			QRD161J-102	CR
R512			QRD161J-181	CR
R513			—	—
R514			QRD161J-103	CR
R515			QRD161J-332	CR
R516			QRD161J-103	CR
R517			—	—
R518			QRD161J-103	CR (E/EG)
R519			QRD161J-682	CR (E/EG)
R520			QRD161J-103	CR
R521			QRD161J-272	CR
R522			QRD161J-102	CR
R523			—	—
R524			QRD161J-562	CR
R525			QRD161J-683	CR
R526			QRD161J-183	CR
R527			QRD161J-223	CR
R528			QRD161J-103	CR
R529			QRD161J-103	CR
R530			—	—
R531			QRD161J-223	CR
R532			—	—
R533			—	—
R534			QRD163J-223	CR
R535			QRD161J-563	CR
R536			QRD161J-102	CR
C1			QETC1EM-475	E CAP
C2			QCSB1HJ-100	C CAP
C3			QCSB1HJ-120	C CAP
C4			QETC1EM-475	E CAP
C5			QETC1HM-334	E CAP
C6			QCVB1CN-103	C CAP
C7			QCVB1CN-103	C CAP
C8			QETC0JM-476	E CAP

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
C9			QCVB1CN-103	C CAP
C10			QETC1AM-476	E CAP
C11			QCVB1CN-103	C CAP
C12			QETC1EM-475	E CAP
C13			QCVB1CN-103	C CAP
C14			QCVB1CN-103	C CAP
C15			QETC0JM-476	E CAP
C16			QCVB1CN-103	C CAP
C17			QETC1AM-476	E CAP
C18			QCVB1CN-103	C CAP
C19			QCSB1HJ-220	C CAP
C20			QCSB1HJ-270	C CAP
C21			QETC0JM-476	E CAP
C22			QCVB1CN-103	C CAP
C23			QETC0JM-476	E CAP
C24			QCSB1HJ-150	C CAP
C25			QETC0JM-476	E CAP
C26			QCVB1CN-103	C CAP
C27			QETC1HM-104	E CAP
C28			QETC1HM-105	E CAP
C29			QETC1HM-334	E CAP
C30			QETC1CM-106	E CAP
C31			QETC1HM-105	E CAP
C32			QCB1HJ-121	C CAP
C33			QCVB1CN-103	C CAP
C34			QCVB1CN-103	C CAP
C35			QETC0JM-476	E CAP
C36			QCSB1HK-8R2	C CAP
C37			QCB1HJ-102	C CAP
C38			QETC1EM-475	E CAP
C39			QCB1HJ-102	C CAP
C40			QCC11EJ-223	C CAP
C41			QETC0JM-476	E CAP
C42			QCVB1CN-103	C CAP
C43			QCC11EJ-223	C CAP
C44			QCSB1HJ-560	C CAP
C45			QCVB1CN-103	C CAP
C46			QCB1HJ-471	C CAP
C47			QCC11EJ-223	C CAP
C48			QCB1HJ-331	C CAP
C49			QETC1AM-226	E CAP
C50			QETC1EM-475	E CAP
C51			QETC1CM-106	E CAP
C52			QETC1HM-225	E CAP
C53			QETC1AM-226	E CAP
C54			QETC0JM-476	E CAP
C55			QCC11EJ-104	C CAP
C56			QCB1HJ-681	C CAP
C57			QETC1AM-226	E CAP
C58			QCVB1CN-103	C CAP
C59			QETC0JM-476	E CAP
C60			QCB1HJ-331	C CAP
C61			QETC1AM-226	E CAP
C62			QCSB1HJ-180	C CAP
C63			QETC1AM-226	E CAP
C64			QCSB1HJ-100	C CAP
C65			QETC1AM-226	E CAP
C66			QCSB1HJ-220	C CAP
C67			QCSB1HJ-560	C CAP
C68			QCB1HJ-121	C CAP
C69			QCB1HJ-151	C CAP
C70			QCSB1HJ-330	C CAP
C71			—	—
C72			QCSB1HJ-560	C CAP
C73			QCSB1HJ-101	C CAP
C74			QCB1HJ-181	C CAP

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION	#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
C75			QCSB1HJ-151	C CAP	C138			QCSB1HJ-220	C CAP
C76			QCVB1CN-103	C CAP	C139			QCSB1HJ-220	C CAP
C77			QCVB1CN-103	C CAP	C140			QCVB1CN-103	C CAP
C78			QCVB1CN-103	C CAP					
C79			QCVB1CN-103	C CAP	C141			—	—
C80			QETCOJM-227	E CAP	C142			QETC1HM-105	E CAP
					C143			QETC1HM-105	E CAP
C81			—	—	C144			QETC1EM-475	E CAP
C82			QETC1EM-335	E CAP	C145			QETC1HM-105	E CAP
C83			QEN61HM-105	NP CAP	C146			QCC11EJ-152	C CAP
C84			QCVB1CN-103	C CAP	C147			QCC11EJ-332	C CAP
C85			QCVB1CN-103	C CAP	C148			QETC1HM-105	E CAP
C86			QCSB1HJ-681	C CAP	C149			QCC11EJ-223	C CAP
C87			QETC1HM-225	E CAP	C150			QCT25CH-220	C CAP
C88			QETA1HM-335	E CAP					
C89			QETC1HM-225	E CAP	C151			QCVB1CN-103	C CAP
C90			QETC1CM-106	E CAP	C152			QETC1CM-106	E CAP
					C153			QETC1AM-476	E CAP (E/EG)
C91			QEN61EM-335	NP CAP	C154			QCVB1CN-103	C CAP (E/EG)
C92			QETCOJM-477	E CAP	C155			QETC1AM-336	E CAP (E/EG)
C93			QETCOJM-476	E CAP	C156			QCC11EJ-182	C CAP (E/EG)
C94			QCSB1HJ-101	C CAP	C157			QCC11EJ-272	C CAP (E/EG)
C95			QCSB1HJ-102	C CAP	C158			QCC11EJ-473	C CAP (E/EG)
C96			QCVB1CN-103	C CAP	C159			QETC1CM-106	E CAP (E/EG)
C97			QETC1CM-107	E CAP	C160			QCVB1CN-103	C CAP (E/EG)
C98			—	—					
C99			QETC1HM-474	E CAP	C161			QETC1HM-225	E CAP
C100			QETC1EM-475	E CAP	C162			QETCOJM-337	E CAP
					C163			QCVB1CN-103	C CAP
C101			QCVB1CN-103	C CAP	C164			QETC1CM-226	E CAP
C102			—	—	C165			QCSB1HJ-330	C CAP
C103			QETC1CM-106	E CAP	C166			—	—
C104			—	—	C167			—	—
C105			QETC1CM-106	E CAP	C168			QETB1CM-226	E CAP
C106			QETC1HM-225	E CAP	C169			QCVB1CN-103	C CAP
C107			QFN31HJ-224	MY CAP	C170			—	—
C108			QCC11EJ-563	C CAP					
C109			QETC1EM-335	E CAP	C171			QCVB1CN-103	C CAP
C110			QCC11EJ-473	C CAP	C172			QCBC1HJ-561	C CAP
					C173			QETA1AM-336	E CAP
C111			QCVB1CN-103	C CAP	C174			QEK51HM-225	E CAP
C112			QETC1EM-475	E CAP	C175			QCSC1HJ-330	C CAP
C113			QETC1AM-336	E CAP					
C114			QETCOJM-476	E CAP	L1			PU48530-101J	PEAKING COIL
C115			QCVB1CN-103	C CAP	L2			PU48530-820J	PEAKING COIL
C116			QETC1HM-105	E CAP	L3			PU48530-101J	PEAKING COIL
C117			QCSB1HJ-101	C CAP	L4			PU48530-820J	PEAKING COIL
C118			QCSB1HJ-102	C CAP	L5			PU59152-560J	PEAKING COIL
C119			QCVB1CN-103	C CAP	L6			PU59152-560J	PEAKING COIL
C120			QCSB1HJ-102	C CAP	L7			PU48530-101J	PEAKING COIL
					L8			PU48530-101J	PEAKING COIL
C121			QCSB1HJ-100	C CAP	L9			PU48530-101J	PEAKING COIL
C122			QETC1EM-475	E CAP	L10			PU48530-101J	PEAKING COIL
C123			QETC1EM-475	E CAP					
C124			QCVB1CN-103	C CAP	L11			PU59152-220J	PEAKING COIL
C125			QETC1CM-476	E CAP	L12			PU48530-101J	PEAKING COIL
C126			QCVB1CN-103	C CAP	L13			PU59152-560J	PEAKING COIL
C127			QCVB1CN-103	C CAP	L14			—	—
C128			QETCOJM-107	E CAP	L15			PU59152-220J	PEAKING COIL
C129			QCVB1CN-103	C CAP	L16			PU48530-101J	PEAKING COIL
C130			QCC11EJ-222	C CAP	L17			PU48530-471J	PEAKING COIL
					L18			PU48530-121J	PEAKING COIL
C131			QCC11EJ-103	C CAP	L19			PU59152-121J	PEAKING COIL
C132			QFN31HJ-222	MY CAP	L20			PU59152-560J	PEAKING COIL
C133			QCC11EJ-273	C CAP					
C134			QETC1HM-105	E CAP	L21			PU48530-101J	PEAKING COIL
C135			QCVB1CN-103	C CAP	L22			PU47051-822	PEAKING COIL
C136			QCSB1HJ-680	C CAP	L23			PU48530-101J	PEAKING COIL
C137			QCVB1CN-103	C CAP	L24			PU59152-150J	PEAKING COIL

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
L25			PU59152-560J	PEAKING COIL
L26			PU48530-101J	PEAKING COIL
L27			PU59152-220J	PEAKING COIL
L28			PU59152-330J	PEAKING COIL
L29			PU48530-101J	PEAKING COIL
L30			PU58308-562J	PEAKING COIL (E/EG)
L31			PU48530-101J	PEAKING COIL (E/EG)
L32			PU57139	LC BLOCK
L33			PU49057	TRAP COIL
L34			PU49057	TRAP COIL (E/EG)
L35			PU48530-101J	PEAKING COIL
L36			PU48530-101J	PEAKING COIL
L37			PU59152-560	PEAKING COIL
LPF1			PU59395	LOW PASS FILTER
LPF2			PU58021-2	LOW PASS FILTER
BPF1			PU57072	BAND PASS FILTER
BPF2			PU54410-2	BAND PASS FILTER
DL1			PU58971-3	2H DELAY LINE
CF1			PU56983	CERAMIC FILTER (E/EG)
EQ1			PU58315	EQUALIZER
EQ2			PU54838	EQUALIZER (E/EG)
△ X1			PU59335	CRYSTAL
△		OR	PU31449-4K	CRYSTAL
△ XB1			PU58126	CRYSTAL BLOCK
△		OR	PU58023	CRYSTAL BLOCK
CN1			PU58844-6	CAP HOUSING
CN2			PU58844-6	CAP HOUSING
CN3			PU58844-3	CAP HOUSING
CN4			PU58844-6	CAP HOUSING (E/EG)
CN5			PU58844-8	CAP HOUSING
CN6			PU58844-7	CAP HOUSING
CN7			PU58844-5	CAP HOUSING
CN8			PU58844-5	CAP HOUSING
CN9			PU58844-8	CAP HOUSING
CN10			PU58844-2	CAP HOUSING
TP			PU57545	TEST PIN, 10,11,21—23,25,26 29,41,104—106,110,121,125 126,128,129,130—132,GND1,2, (E/EG)
TP			PU57545	TEST PIN, 10—12,21—23,25,26 29,41,104—106,121,125,126,128 129,130—132,GND1,2, (EK)
SLD1			PU59418	SHIELD CASE
SLD2			PU59419	SHIELD PLATE
SLD3			PU59455	SHIELD COVER
CSN1			PU42226	CUSHION
—AUDIO SECTION—				
IC401			TA7361AP	INTEGRATED CIRCUIT
IC402			AN3991K	INTEGRATED CIRCUIT
Q401			DTC124ES	D TRANSISTOR
Q402			DTC124ES	D TRANSISTOR
△ Q403			2SC1740S(RS)	TRANSISTOR
Q404			2SC1740S(RS)	TRANSISTOR
Q405			2SC2021R,S	TRANSISTOR
Q406			2SA933S(RS)	TRANSISTOR
Q407			2SA933S(RS)	TRANSISTOR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
Q408			2SA933S(RS)	TRANSISTOR
Q409			DTC124ES	D TRANSISTOR
D401			MA165	DIODE
		OR	1SS133	DIODE
D402			MA165	DIODE
		OR	1SS133	DIODE
D403			MA165	DIODE
		OR	1SS133	DIODE
D404			MA165	DIODE
		OR	1SS133	DIODE
D405			MA165	DIODE
		OR	1SS133	DIODE
D406			—	—
D407			MA165	DIODE
		OR	1SS133	DIODE
R401			QRD181J-223	CR
R402			QRD161J-102	CR
R403			QRD161J-182	CR
R404			QRD167J-475	CR
R405			QRD161J-103	CR
R406			QRD161J-103	CR
R407			QRD161J-122	CR
R408			—	—
R409			QRD181J-223	CR
R410			QRD161J-100	CR
R411			QRD161J-473	CR
R412			QRD161J-822	CR
R413			QRD161J-104	CR
R414			QRD161J-273	CR
R415			QRD161J-330	CR
R416			QRD161J-680	CR
R417			—	—
R418			—	—
R419			QRD161J-152	CR
R420			QRD161J-392	CR
R421			QRD161J-392	CR
R422			QRD161J-103	CR
R423			QVZ3518-222	VR, PB LEVEL
R424			QRD161J-562	CR
R425			QRD161J-224	CR
R426			—	—
R427			—	—
R428			QRD161J-271	CR
R429			—	—
R430			QRD161J-393	CR
R431			QRD161J-223	CR
R432			QRD161J-562	CR
R433			QRD161J-222	CR
R434			QVZ3518-683	VR, BIAS ADJ
R435			QRD161J-563	CR
R436			QRD161J-100	CR
R437			QRD161J-393	CR
R438			QRD182J-220	CR
R439			QRD161J-682	CR
R440			QRD161J-682	CR
R441			QRD161J-682	CR
R442			QRD161J-682	CR
R443			QRD161J-682	CR
R444			QRD161J-682	CR
R445			QRD161J-331	CR
R446			QRD161J-272	CR
R447			QRD161J-561	CR
△ R448			PU52108-470K	POSISTOR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
Δ	R449		PU52108-330K	POSISTOR
	C401		QETC1EM-335	E CAP
	C402		QETC1EM-475	E CAP
	C403		QETC1EM-475	E CAP
	C404		QETC1EM-475	E CAP
	C405		QETC1AM-336	E CAP
	C406		QEK61HM-474	E CAP
	C407		QFN31HJ-682	MY CAP
	C408		QETC1CM-476	E CAP
	C409		QEK61HM-474	E CAP
	C410		QCS11HJ-101	C CAP
	C411		QFN31HJ-823	MY CAP
	C412		QFZ9011-124	MM CAP
	C413		QETC1EM-335	E CAP
	C414		QETC1EM-335	E CAP
	C415		QFN31HJ-222	MY CAP
	C416		QFZ9011-224	MM CAP
	C417		QFN31HJ-153	MY CAP
	C418		QEK61EM-475	E CAP
	C419		QEK61HM-334	E CAP
	C420		—	—
	C421		QEB61JM-105	E CAP
	C422		QFN31HJ-102	MY CAP
	C423		QETC1AM-476	E CAP
	C424		QETC1CM-476	E CAP
	C425		QCS31HJ-561	C CAP
	C426		QFP42AJ-223	PP CAP
	C427		QETC1CM-106	E CAP
	C428		QFN31HJ-102	MY CAP
	C429		QFN31HJ-332	MY CAP
	C430		QFP42AJ-333	PP CAP
	C431		QETC1CM-336	E CAP
	C432		QFN31HJ-122	MY CAP
	C433		QFN31HJ-222	MY CAP
	C434		QETC1HM-225	E CAP
	C435		QFN31HJ-683	MY CAP
	L401		PU58308-272J	COIL
	L402		PU48530-561K	PEAKING COIL
	L403		PU48530-561K	PEAKING COIL
	L404		PU58308-822J	COIL
	T401		PU57942	OSC TRANS
	T402		PU57943	OSC TRANS
	CN401		PU58844-7	CAP HOUSING
	CN402		PU58844-4	CAP HOUSING
	TP		PU57545	TEST PIN,401,402,403
—FM AUDIO SECTION—				
	IC201		—	—
	IC202		TA78L005AP	INTEGRATED CIRCUIT
	IC203		—	—
	IC204		VC2024A	INTEGRATED CIRCUIT
	IC205		BA7057	INTEGRATED CIRCUIT
	IC206		HA12072NT	INTEGRATED CIRCUIT
	IC207		UPD4053BC	INTEGRATED CIRCUIT
	IC208		AN3926K	INTEGRATED CIRCUIT
	IC209		M5218P	INTEGRATED CIRCUIT
	Q201		2SC1740S(QRS)	TRANSISTOR
	Q202		2SB643Q	TRANSISTOR
	Q203		2SD638Q	TRANSISTOR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
	Q204		2SB643Q	TRANSISTOR
	Q205		2SC1740S(QRS)	TRANSISTOR
	Q206		2SC1740S(QRS)	TRANSISTOR
	Q207		2SB810H,J	TRANSISTOR
	Q208		DTC124ES	D TRANSISTOR
	Q209		DTC124EF	D TRANSISTOR
	Q210		2SC2021Q,R	TRANSISTOR
	Q211		2SC2021Q,R	TRANSISTOR
	Q212		—	—
	Q213		—	—
	Q214		2SB641Q	TRANSISTOR
	Q215		2SB810H,J	TRANSISTOR
	Q216		DTA124ES	D TRANSISTOR
	Q217		2SD638Q	TRANSISTOR
	Q218		2SC1740S(QRS)	TRANSISTOR
	Q219		2SC2021Q,R	TRANSISTOR
	Q220		DTC144ES	D TRANSISTOR
	Q221		2SD638Q	TRANSISTOR
	Q222		—	—
	Q223		DTC124ES	D TRANSISTOR
	D201		1SS133	DIODE
	D202		1SS133	DIODE
	D203		1SS133	DIODE
	D204		1SS133	DIODE
	D205		1SS133	DIODE
	D206		1SS133	DIODE
	D207		1SS133	DIODE
	R201		QRD161J-392	CR
	R202		QRD161J-183	CR
	R203		QRD161J-100	CR
	R204		QRD161J-102	CR
	R205		QRD161J-222	CR
	R206		QRD161J-222	CR
	R207		QRD161J-102	CR
	R208		QRD161J-100	CR
	R209		QRD161J-102	CR
	R210		QRD161J-151	CR
	R211		QRD161J-393	CR
	R212		QRD161J-102	CR
	R213		QRD161J-821	CR
	R214		QRD161J-223	CR
	R215		QRD161J-472	CR
	R216		QRD161J-472	CR
	R217		QRD161J-561	CR
	R218		QRD161J-392	CR
	R219		QRD161J-561	CR
	R220		QRD182J-102	CR
	R221		QRD161J-102	CR
	R222		QRD161J-332	CR
	R223		QRD161J-103	CR
	R224		QRD161J-103	CR
	R225		QRD161J-222	CR
	R226		QRD161J-393	CR
	R227		QRD161J-102	CR
	R228		QVZ3518-103	VR, FM REC LEVEL
	R229		QRD161J-102	CR
	R230		QRD161J-472	CR
	R231		QRD161J-102	CR
	R232		QRD161J-102	CR
	R233		QRD161J-102	CR
	R234		QRD161J-102	CR
	R235		QVZ3518-102	VR, PB LEVEL (R)

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R236			QVZ3518-102	VR, PB LEVEL (L)
R237			QRD182J-103	CR
R238			QRD161J-272	CR
R239			QRD161J-123	CR
R240			QRD161J-151	CR
R241			QRD161J-151	CR
R242			QRD161J-102	CR
R243			QRD182J-103	CR
R244			—	—
R245			—	—
R246			QRD161J-104	CR
R247			QVZ3518-472	VR,E-E LEVEL (L)
R248			QRD161J-122	CR
R249			QRD161J-102	CR
R250			QVZ3518-472	VR,E-E LEVEL (R)
R251			QRD161J-105	CR
R252			QRD161J-563	CR
R253			QRD161J-103	CR
R254			QRD161J-105	CR
R255			QRD161J-474	CR
R256			QRD161J-221	CR
R257			QRD161J-333	CR
R258			QRD161J-103	CR
R259			QRD161J-333	CR
R260			QRD161J-103	CR
R261			QRD161J-103	CR
R262			QRD161J-105	CR
R263			QRD161J-103	CR
R264			QRD161J-105	CR
R265			QRD161J-103	CR
R266			QRD161J-474	CR
R267			QVZ3518-103	VR, OFFSET (L)
R268			QVZ3518-103	VR, OFFSET (R)
R269			QRD161G-511	CR
R270			QRD161J-472	CR
R271			QRD161G-511	CR
R272			QRD161J-472	CR
R273			QRD161J-222	CR
R274			QRD161J-102	CR
R275			QRD161J-472	CR
R276			QRD161J-472	CR
R277			QRD161J-222	CR
R278			QRD161J-102	CR
R279			QRD161J-472	CR
R280			QRD161J-472	CR
R281			QRD161J-272	CR
R282			QRD161J-182	CR
R283			QRD161J-272	CR
R284			QRD161J-182	CR
R285			QRD161J-102	CR
R286			QRD161J-225	CR
R287			QRD161J-102	CR
R288			QRD161J-225	CR
R289			QVZ3518-472	VR, IND LEVEL (L)
R290			QVZ3518-472	VR, IND LEVEL (R)
R291			QRD182J-222	CR
R292			QRD182J-222	CR
R293			QRD161J-473	CR
R294			QRD181J-473	CR
R295			—	—
R296			QRD161J-272	CR
R297			QRD161J-222	CR
R298			QRD161J-222	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R299			QRD161G-911	CR
R300			QRD161G-162	CR
R301			QRD161G-162	CR
R302			QRD161G-911	CR
R303			QRD161J-122	CR
R304			QRD161J-272	CR
R305			QRD161J-102	CR
R306			QRD182J-182	CR
R307			QRD161J-473	CR
R308			QRD182J-562	CR
R309			QRD161J-562	CR
R310			QRD161J-221	CR
R311			QRD161J-222	CR
R312			QRD161J-682	CR
R313			QRD161J-221	CR
R314			QRD161J-122	CR
R315			QRD161J-472	CR
R316			QRD161J-472	CR
R317			QRD161J-561	CR
R318			QRD161J-682	CR
R319			—	—
R320			—	—
R321			—	—
R322			—	—
R323			QRD182J-223	CR
R324			QRD161J-223	CR
R325			QRD182J-561	CR
R326			QRD161J-333	CR
R327			QRD161J-104	CR
R328			QRD161J-273	CR
R329			QRD161J-561	CR
RA201			RGLD3X563J	REGISTOR ARRAY
RA202			RGLD3X563J	REGISTOR ARRAY
RA203			RGLD3X563J	REGISTOR ARRAY
RA204			RGLD3X563J	REGISTOR ARRAY
C201			QCF31HP-102	C CAP
C202			QCF31HP-103	C CAP
C203			QCF31HP-103	C CAP
C204			QCF31HP-103	C CAP
C205			QCF31HP-103	C CAP
C206			—	—
C207			QCF31HP-103	C CAP
C208			QER61CM-476	E CAP
C209			QCF31HP-102	C CAP
C210			QCF31HP-103	C CAP
C211			QCS31HJ-821	C CAP
C212			QCF31HP-223	C CAP
C213			QCF31HP-102	C CAP
C214			QCF31HP-223	C CAP
C215			QCS31HJ-101	C CAP
C216			QCF31HP-223	C CAP
C217			QETC1CM-106	E CAP
C218			QEN51CM-106	NP CAP
C219			QCS31HJ-101	C CAP
C220			QETC1CM-106	E CAP
C221			QCF31HP-223	C CAP
C222			QETC0JM-477	E CAP
C223			QEN41CM-106	NP CAP
C224			QET61CM-106	E CAP
C225			QETC1CM-106	E CAP
C226			QFN31HJ-223	MY JCAP
C227			QET61CM-106	E CAP

# Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION	# Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
	C228	QFN31HJ-562	MY CAP		C291	QET61CM-106	E CAP
	C229	QET61CM-106	E CAP		C292	—	—
	C230	QFN31HJ-223	MY CAP		C293	QFN31HJ-332	MY CAP
					C294	QFN31HJ-332	MY CAP
	C231	QFN31HJ-562	MY CAP		C295	—	—
	C232	QETC1CM-106	E CAP		C296	QETC1CM-476	E CAP
	C233	QER61CM-106	E CAP		C297	QEN61CM-106	NP CAP
	C234	QETC0JM-107	E CAP		C298	QEN61CM-106	NP CAP
	C235	QER61CM-106	E CAP		C299	QET60JM-476	E CAP
	C236	QER61CM-106	E CAP		C300	—	—
	C237	QER61CM-106	E CAP				
	C238	QET61CM-106	E CAP		C301	QETC0JM-476	E CAP
	C239	QET61CM-106	E CAP		C302	QETC1CM-106	E CAP
	C240	QET61CM-106	E CAP		C303	QETC1CM-106	E CAP
					C304	QET61CM-106	E CAP
	C241	QETC0JM-107	E CAP		C305	QETC1CM-106	E CAP
	C242	QER60JM-107	E CAP		C306	QEK61HM-106	E CAP
	C243	QET61CM-476	E CAP		C307	QFN31HJ-472	MY CAP
	C244	QETC1CM-106	E CAP		C308	QFN31HJ-472	MY CAP
	C245	QETC1CM-106	E CAP		C309	QER61CM-476	E CAP
	C246	QEK61CM-106	E CAP		C310	—	—
	C247	QEK61CM-106	E CAP				
	C248	QETC1HM-105	E CAP		C311	—	—
	C249	QETC0JM-476	E CAP		C312	QETC0JM-227	E CAP
	C250	QFN31HJ-562	MY CAP		C313	QETC1CM-476	E CAP
					C314	QFN31HJ-222	MY CAP
	C251	QETC0JM-476	E CAP		C315	QFN31HJ-222	MY CAP
	C252	QFN31HJ-562	MY CAP		C316	QFN31HJ-222	MY CAP
	C253	QETC0JM-107	E CAP		C317	QET61CM-106	E CAP
	C254	QETC1CM-106	E CAP		C318	QET61CM-106	E CAP
	C255	QETC1CM-106	E CAP		C319	QCS11HJ-820	C CAP
	C256	QETC0JM-108	E CAP		C320	QCS11HJ-470	C CAP
	C257	QETC1CM-106	E CAP				
	C258	QETC1HM-105	E CAP		C321	—	—
	C259	QETC1HM-105	E CAP		C322	—	—
	C260	QETC1CM-106	E CAP		C323	—	—
					C324	—	—
	C261	QETC1CM-476	E CAP		C325	QER61CM-106	E CAP
	C262	QETC1CM-476	E CAP		C326	QETC1AM-227	E CAP
	C263	QFN31HJ-332	MY CAP		C327	QETC1EM-475	E CAP
	C264	QFZ9011-473	MM CAP		C328	QCS31HJ-471	C CAP
	C265	QER61CM-106	E CAP		C329	QETC1CM-106	E CAP
	C266	QETC1CM-106	E CAP		C330	QET61HM-105	E CAP
	C267	QFZ9011-473	MM CAP				
	C268	QFN31HJ-332	MY CAP		L201	—	—
	C269	QET61CM-106	E CAP		L202	PU58494-2	BAND PASS FILTER,1.8MHz
	C270	QET61CM-106	E CAP		L203	PU58494	BAND PASS FILTER 1.4MHz
					L204	PU48530-101J	PEAKING COIL
	C271	QER61CM-106	E CAP		L205	PU48530-101J	PEAKING COIL
	C272	QETC1CM-106	E CAP		L206	PU58308-152J	COIL
	C273	QETC1CM-476	E CAP		L207	PU58308-152J	COIL
	C274	QETC1CM-106	E CAP		L208	PU58308-152J	COIL
	C275	QETC1CM-106	E CAP		L209	PU58308-152J	COIL
	C276	QETC1CM-106	E CAP		L210	PU49994-221	PEAKING COIL
	C277	QETC1CM-106	E CAP				
	C278	QEN61HM-225	NP CAP		L211	PU48530-331J	COIL
	C279	QEN61HM-225	NP CAP				
	C280	QET61CM-106	E CAP		CN201	PU58844-8	CAP HOUSING
					CN202	PU58844-3	CAP HOUSING
	C281	QETC1CM-106	E CAP		CN203	PU58844-3	CAP HOUSING
	C282	QETC1CM-106	E CAP		CN204	PU58844-5	CAP HOUSING (E/EG)
	C283	QETC1CM-106	E CAP			PU58844-2	CAP HOUSING (EK)
	C284	QFN31HJ-103	MY CAP		CN205	PU58844-7	CAP HOUSING
	C285	QEK61CM-476	E CAP		CN206	PU58844-12	CAP HOUSING (E/EG)
	C286	QER61HM-105	E CAP			PU58844-11	CAP HOUSING (EK)
	C287	QER61HM-105	E CAP		CN207	PU58844-5	CAP HOUSING
	C288	—	—		CN208	—	—
	C289	QETC1CM-106	E CAP		CN209	PU58844-8	CAP HOUSING
	C290	QET61CM-106	E CAP				
					TP	PU57545	TEST PIN, TP201-204
					PN1	PU59391	STYLE PIN, X3
					SPC1	PU57215-2	SPACER, X3
					CSN1	PQ42226	CUSHION, X3

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION

			PU11448D1-04	T/M/S (1) PWB ASS'Y [03], (E)
			PU11448A1-04	T/M/S (1) PWB ASS'Y [03], (EG)
			PU11448B1-04	T/M/S (1) PWB ASS'Y [03], (EK)
-TIMER SECTION-				
		IC1	M5278L56	INTEGRATED CIRCUIT
		IC2	S-8053HLB	INTEGRATED CIRCUIT
△		IC101	UPD75208CW-041	INTEGRATED CIRCUIT, (E/EG)
			UPD75208CW-025	INTEGRATED CIRCUIT, (EK)
		IC102	UPD82C43CY	INTEGRATED CIRCUIT
		IC103	TC4071BP	INTEGRATED CIRCUIT
△		IC104	UPD7538ACU-205	INTEGRATED CIRCUIT
△		IC105	M50452-024P	INTEGRATED CIRCUIT
		IC106	TC4001BP	INTEGRATED CIRCUIT
		OR	UPD4001BC	INTEGRATED CIRCUIT
△		IC107	MSM5258RS	INTEGRATED CIRCUIT
		Q1	-	-
		Q2	2SC1685R,S	TRANSISTOR
		Q3	2SC2021Q,R,S	TRANSISTOR
		Q4	2SC1685R,S	TRANSISTOR
		Q5	2SD1330S	TRANSISTOR
		Q102	DTC124ES	D TRANSISTOR
		Q103	2SC2021Q,R,S	TRANSISTOR
		Q104	DTC114ES	D TRANSISTOR
		Q105	2SC2021Q,R,S	TRANSISTOR
		Q106	-	-
		Q107	-	-
		Q108	DTC114ES	D TRANSISTOR
		Q109	DTC124ES	D TRANSISTOR
		D1	-	-
		D2	-	-
		D3	1SS133	DIODE
		D4	1SS133	DIODE
		D5	RD10ES-T1B1	ZENER DIODE
		D6	1SS133	DIODE
		D7	1SS133	DIODE
		D8	1SS133	DIODE
		D9	1SS133	DIODE
		D10	1SS133	DIODE
		D11	1SS133	DIODE
		D105	1SS133	DIODE
		D106	1SS133	DIODE
		D107	1SS133	DIODE
		R1	-	-
		R2	QRD161J-472	CR
		R3	QRD161J-682	CR
		R4	QRD161J-471	CR
		R5	QRD161J-104	CR
		R6	QRD161J-103	CR
		R7	QRD161J-102	CR
		R8	QRD161J-474	CR
		R9	QRD161J-271	CR
		R10	QVZ3531-222	VR, CLOCK ADJ
		R11	QRD161J-102	CR
		R12	QRD161J-103	CR
		R13	QRD161J-103	CR
		R14	QRD161J-222	CR
		R15	QRD161J-103	CR
		R16	QRD161J-684	CR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R17	QRD161J-104	CR
		R18	QRD161J-101	CR
		R19	-	-
		R20	QRD161J-151	CR
△		R21	PU52108-470	POSISTOR
△		OR	PU52108-470K	POSISTOR
		R101	QRD161J-472	CR
		R102	QRD161J-472	CR
		R103	QRD161J-472	CR
		R104	QRD161J-472	CR
		R105	QRD161J-472	CR
		R106	QRD161J-472	CR
		R107	QRD161J-472	CR
		R108	QRD161J-472	CR
		R109	-	-
		R110	-	-
		R111	-	-
		R112	-	-
		R113	QRD161J-472	CR
		R114	QRD161J-472	CR
		R115	QRD161J-472	CR
		R116	QRD161J-103	CR
		R117	QRD161J-472	CR
		R118	QRD161J-472	CR
		R119	QRD161J-472	CR
		R120	-	-
		R121	-	-
		R122	QRD161J-472	CR
		R123	QRD161J-333	CR
		R124	QRD161J-333	CR
		R125	-	-
		R126	QRD161J-224	CR
		R127	QRD161J-472	CR
		R128	QRD161J-472	CR
		R129	QRD161J-472	CR
		R130	QRD161J-103	CR
		R131	QRD161J-222	CR
		R132	QRD161J-222	CR
		R133	QRD161J-224	CR
		R134	QRD161J-471	CR
		R135	-	-
		R136	QRD161J-471	CR
		R137	QRD162J-562	CR
		R138	QRD162J-272	CR
		R139	QRD161J-562	CR
		R140	QRD161J-332	CR
		R141	-	-
		R142	QRD161J-562	CR
		R143	QRD161J-562	CR
		R144	QRD161J-103	CR
		R145	QRD161J-562	CR
		R146	QRD161J-562	CR
		R147	QRD161J-472	CR
		R148	QRD161J-472	CR
		R149	QRD161J-472	CR
		R150	QRD161J-103	CR
		R151	QRD161J-103	CR
		R152	QRD161J-103	CR
		R153	QRD161J-103	CR
		R154	QRD161J-472	CR
		R155	QRD161J-472	CR
		R156	QRD161J-472	CR
		R157	QRD161J-472	CR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R158			QRD161J-472	CR
R159			—	—
R160			QRD161J-472	CR
R161			QRD161J-472	CR
R162			QRD161J-472	CR
R163			QRD161J-472	CR
R164			QRD161J-472	CR
R165			QRD161J-472	CR
R166			QRD161J-472	CR
R167			QRD161J-472	CR
R168			QRD161J-471	CR
R169			QRD161J-472	CR
R170			QRD161J-104	CR
R171			QRD161J-103	CR
R172			QRD161J-103	CR
R173			—	—
R174			QRD161J-103	CR
R175			QRD161J-472	CR
R176			QRD161J-472	CR
R177			QRD161J-103	CR
R178			—	—
R179			QRD161J-224	CR
R180			QRD161J-222	CR
R181			QRD161J-222	CR
R182			QRD162J-103	CR
R183			QRD161J-472	CR
R184			QRD161J-334	CR
R185			QRD161J-104	CR
R186			QRD161J-102	CR
R187			QRD161J-102	CR
R188			QRD161J-103	CR
RA101			EXB-P84333M	RESISTOR ARRAY
		OR	RMLS4J333	RESISTOR ARRAY
RA102			EXB-P83333M	RESISTOR ARRAY
		OR	RMLS3J333	RESISTOR ARRAY
RA103			QRB067J-333	RESISTOR ARRAY
RA104			QRB047J-333	RESISTOR ARRAY
RA105			—	—
RA106			EXB-P86105M	RESISTOR ARRAY
		OR	RMLS6J105	RESISTOR ARRAY
RA107			QRB107J-333	RESISTOR ARRAY
RA108			EXB-P84224M	RESISTOR ARRAY
		OR	RMLS4J224	RESISTOR ARRAY
C1			QETC1EM-107	E CAP
C2			—	—
C3			QETC1CM-107	E CAP
C4			QETC1CM-336	E CAP
C5			QCB1HJ-102	C CAP
C6			QCF31HP-103	C CAP
C7			QETC1EM-476	E CAP
C8			QCSB1HJ-330	C CAP
C9			QCVB1CM-103	C CAP
C10			QCB1HJ-101	C CAP
C11			QCSB1HJ-220	C CAP
C12			QCSB1HJ-220	C CAP
C13			—	—
C14			QCF31HP-103	C CAP
C15			QETA1AM-476	E CAP
C101			QCC11EK-682	C CAP
C102			PU57672-400	TR CAP, TIMER CLOCK
C103			QCSB1HJ-560	C CAP
C104			—	—

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
C105			—	—
C106			QCSB1HJ-331	C CAP
C107			QCSB1HJ-331	C CAP
C108			QCC11EK-473	C CAP
C109			—	—
C110			QCF31HP-103	C CAP
C111			QCF31HP-103	C CAP
C112			QCF11HP-473	C CAP
C113			QCF11HP-473	C CAP
C114			QCF11HP-223	C CAP
△ X101			PU58394	CRYSTAL
△ X104			PU59784	CRYSTAL
△ CF102			PU58428	CERAMIC FILTER
△		OR	PU59576	CERAMIC FILTER
△ CF103			PU50224	CERAMIC FILTER
SW1			PU59423	SLIDE SWITCH, (E)
CN1			PU58844-7	CAP HOUSING
CN2			PU58844-4	CAP HOUSING, (E/EG)
CN3			PU58844-6	CAP HOUSING
CN4			PU58844-2	CAP HOUSING
CN5			—	—
CN6			PU58844-3	CAP HOUSING
TP			PU56008	TEST PIN, TP1—4, 6, 7
—MECHACON SECTION—				
IC201			TMS1035NE	INTEGRATED CIRCUIT
IC202			M50742-622SP	INTEGRATED CIRCUIT
IC203			—	—
IC204			BA7750AL	INTEGRATED CIRCUIT
IC205			BU4013B	INTEGRATED CIRCUIT
IC206			BA6238A	INTEGRATED CIRCUIT
Q201			2SC3243D,E	TRANSISTOR
		OR	2SD1292Q,R	TRANSISTOR
Q202			2SC1741S(QR)	TRANSISTOR, (EK)
Q203			2SC1741S(QR)	TRANSISTOR
Q204			DTC124ES	D TRANSISTOR
Q205			2SC1741S(QR)	TRANSISTOR
Q206			2SD637R,S	TRANSISTOR
Q207			2SD1406Y	TRANSISTOR
Q208			DTA124ES	D TRANSISTOR, (EK)
Q209			DTC124ES	D TRANSISTOR
Q210			DTA124ES	D TRANSISTOR
Q211			DTC124ES	D TRANSISTOR
Q212			DTC124ES	D TRANSISTOR
D201			1SS133	DIODE
D202			MA27WA	DIODE
D203			RD6.8ES-T1B2	ZENER DIODE
		OR	MTZ6.8B	ZENER DIODE
D204			1SS133	DIODE
D205			1SS133	DIODE
D206			1SS133	DIODE
D207			RD6.8ES-T1B2	ZENER DIODE
		OR	MTZ6.8B	ZENER DIODE
D214			1SS133	DIODE
D215			1SS133	DIODE
D216			1SS133	DIODE
D217			RD15ES-T1B1	ZENER DIODE
		OR	MTZ15A	ZENER DIODE

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		D218	—	—
		D219	1SS133	DIODE
		D220	RD8.2ES-T1B2	ZENER DIODE
			OR MTZ8.2B	ZENER DIODE
		D221	1SS133	DIODE
		D222	RD9.1ES-T1B2	ZENER DIODE, (EK)
		D223	1SS133	DIODE, (EK)
		DA201	DAN201	DIODE ARRAY
Δ		R201	PU58802-2R2	POSISTOR
		R202	QRD161J-102	CR
		R203	—	—
		R204	QRD161J-472	CR
		R205	QRD161J-332	CR
		R206	QRD161J-472	CR
		R207	QRD161J-472	CR
		R208	QRD161J-472	CR
		R209	QRD161J-103	CR
		R210	QRD161J-105	CR
		R211	QRD161J-102	CR, (EK)
		R212	QRD161J-103	CR
		R213	QRD161J-102	CR
		R214	QRD161J-103	CR
		R215	QRD161J-103	CR
		R216	QRD161J-223	CR, (EK)
		R217	QRD161J-223	CR, (EK)
		R218	QRD161J-103	CR
		R219	QRD161J-103	CR
		R220	—	—
		R221	—	—
		R222	—	—
		R223	—	—
		R224	—	—
		R225	QRD161J-332	CR
		R226	QRD161J-222	CR
		R227	QRD161J-104	CR
		R228	QRD161J-683	CR
		R229	QRD161J-683	CR
		R230	QRD161J-560	CR
		R231	—	—
		R232	—	—
		R233	—	—
		R234	—	—
		R235	—	—
		R236	—	—
		R237	QRD161J-103	CR
		R238	QRD161J-103	CR
		R239	QRD161J-103	CR
		R240	QRD161J-122	CR
		R241	QRD161J-562	CR
		R242	QRD161J-183	CR
		R243	QRD161J-103	CR
		R244	QRD161J-153	CR
		R245	QRD161J-103	CR
		R246	QRD161J-0R0	CR
		R247	QRD161J-123	CR
		R248	QRD161J-472	CR
		R249	QRD161J-472	CR
		R250	QRD161J-103	CR
		R251	QRD161J-153	CR
		R252	QRD161J-103	CR
		R253	QRD161J-682	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R254	QRD161J-103	CR
		R255	QRD161J-103	CR
		R256	QRD161J-103	CR
		R257	QRD161J-103	CR
		R258	QRD161J-103	CR
		R259	QRD161J-103	CR
		R260	QRD161J-103	CR
		R261	QRD161J-103	CR
		R262	QRD161J-103	CR
		R263	QRD161J-472	CR
		R264	QRD161J-472	CR
		R265	QRD161J-472	CR
		R266	QRD161J-124	CR
		R267	QRD161J-124	CR
		R268	—	—
		R269	—	—
		R270	—	—
		R271	QRD161J-103	CR
		R272	—	—
		R273	QRD161J-102	CR, (EK)
		RA201	QRB037J-103	RESISTOR ARRAY
		RA202	QRB047J-103	RESISTOR ARRAY
		RA203	—	—
		RA204	QRB057J-104	RESISTOR ARRAY
		RA205	RGLD3X472M	RESISTOR ARRAY
		RA206	RGLD4X103M	RESISTOR ARRAY
		C201	QCB11HJ-102	C CAP
		C202	QCF11EZ-223	C CAP
		C203	QEE51CM-106	TA CAP
		C204	QEK61HM-225	E CAP
		C205	QCS31HJ-390	C CAP
		C206	QCS31HJ-390	C CAP
		C207	QCF11HP-102	C CAP
		C208	QFN41HJ-103	MY CAP
		C209	QCF11HP-102	C CAP
		C210	QEK61CM-476	E CAP
		C211	QEK61HM-105	E CAP
		C212	QEK61HM-225	E CAP
		C213	QEK61HM-225	E CAP
		C214	QEK61HM-105	E CAP
		C215	QEK61HM-474	E CAP
		C216	QEK61HM-474	E CAP
		C217	QEK61CM-476	E CAP
		C218	QFN31HJ-154	MY CAP
		C219	QET61CM-107	E CAP
		C220	—	—
		C221	QEK61HM-105	E CAP
		C222	QFN31HJ-102	MY CAP
		C223	QCF11HP-102	C CAP
		C224	QEK61CM-106	E CAP
		C225	QCF11EZ-223	C CAP
		C226	QCF11EZ-223	C CAP
		CF201	PU56292	CERAMIC FILTER
		L201	PU53223-100J	PEAKING COIL
		L202	PU56181-330	CHOKE COIL
		HTS1	PQ41762	HEAT SINK, FOR Q207
		SCR1	LPSP3008Z	SCREW, FOR Q207
		SCR2	DPSP3008Z	ASS'Y SCREW, FOR Q207

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION	#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		WSR1	Q03093-404	WASHER, FOR Q207			Q436	—	—
		CN201	PU58844-10	CAP HOUSING			Q437	DTC144WF	D TRANSISTOR
		CN202	PU58844-5	CAP HOUSING			Q438	DTC144ES	D TRANSISTOR
		CN203	PU58844-8	CAP HOUSING			D401	DA210S	DIODE ARRAY
		CN204	PU58844-4	CAP HOUSING			D402	1SS133	DIODE
		CN205	—	—			OR	MA165	DIODE
		CN206	—	—			D403	1SS133	DIODE
		CN207	PU58844-2	CAP HOUSING			OR	MA165	DIODE
		CN208	—	—			D404	DAN209S	DIODE ARRAY
		CN209	—	—			D405	1SS133	DIODE
		CN210	PU58844-2	CAP HOUSING			D406	RD5.1EB3	ZENER DIODE
							OR	MTZ5.1C	ZENER DIODE
		CN211	—	—			D407	DA210S	DIODE ARRAY
		CN212	PU58844-11	CAP HOUSING			D408	DA210S	DIODE ARRAY
		CN213	PU58844-10	CAP HOUSING			D409	1SS133	DIODE
		JCN201	PU50356-20	RECED HOUSING			D410	DA210S	DIODE ARRAY
		JCN202	PU50356-20	RECED HOUSING			D411	—	—
		—SERVO SECTION—					D412	RD13EB2	ZENER DIODE
		IC401	M51795P	INTEGRATED CIRCUIT			OR	MTZ13B	ZENER DIODE
		IC402	BU2710SA	INTEGRATED CIRCUIT			D413	1SS133	DIODE
		IC403	MB84066BM	INTEGRATED CIRCUIT			OR	MA165	DIODE
		OR	BU4066B	INTEGRATED CIRCUIT			D414	1SS133	DIODE
		IC404	IR3702	INTEGRATED CIRCUIT			OR	MA165	DIODE
		IC405	M5218P	INTEGRATED CIRCUIT			D415	DAN209S	DIODE ARRAY
		IC406	UPC393C	INTEGRATED CIRCUIT			D416	DAP201	DIODE ARRAY
		OR	IR9393	INTEGRATED CIRCUIT			D417	DAN201	DIODE ARRAY
		IC407	DN819	INTEGRATED CIRCUIT			D418	1SS133	DIODE
		IC408	M50766-603P	INTEGRATED CIRCUIT			OR	MA165	DIODE
		IC409	UPC358C	INTEGRATED CIRCUIT			D419	1SS133	DIODE
		IC410	M51722P	INTEGRATED CIRCUIT			OR	MA165	DIODE
		IC411	UPD1511ACU-615	INTEGRATED CIRCUIT			D420	1SS133	DIODE
		IC412	BA236	INTEGRATED CIRCUIT			OR	MA165	DIODE
		IC413	DN819	INTEGRATED CIRCUIT			D421	1SS133	DIODE
		Q401	2SC3311Q,R,S	TRANSISTOR			OR	MA165	DIODE
		Q402	2SA1309Q,R,S	TRANSISTOR			D422	1SS133	DIODE
		Q403	DTA144ES	D TRANSISTOR			OR	MA165	DIODE
		Q404	DTC144ES	D TRANSISTOR			D423	DA210S	DIODE ARRAY
		Q405	2SA1309Q,R,S	TRANSISTOR			D424	1SS133	DIODE
		Q406	2SD636Q,R,S	TRANSISTOR			D425	—	—
		Q407	—	—			D426	1SS133	DIODE
		Q408	DTA124ES	D TRANSISTOR			OR	MA165	DIODE
		Q409	—	—			D431	1SS133	DIODE
		Q410	DTA124ES	D TRANSISTOR			OR	MA165	DIODE
		Δ Q411	DTC144ES	D TRANSISTOR			D432	1SS133	DIODE
		Q412	DTC124ES	D TRANSISTOR			D433	—	—
		Q413	DTC124ES	D TRANSISTOR			D434	1SS133	DIODE
		Q414	DTC124ES	D TRANSISTOR			OR	MA165	DIODE
		Q415	—	—			D435	1SS133	DIODE
		Q416	DTC124ES	D TRANSISTOR			OR	MA165	DIODE
		Q417	DTC124ES	D TRANSISTOR			D436	DAN201	DIODE ARRAY
		Q418	—	—			D437	—	—
		Q419	2SA1309Q,R,S	TRANSISTOR			D438	1SS133	DIODE
		Q420	2SA1309S	TRANSISTOR			OR	MA165	DIODE
		Q421	DTC144WS	D TRANSISTOR			D439	1SS133	DIODE
		Q422	DTC144ES	D TRANSISTOR			OR	MA165	DIODE
		Q431	2SD636Q,R	TRANSISTOR			D440	1SS133	DIODE
		Q432	2SA1309Q,R	TRANSISTOR			OR	MA165	DIODE
		Q433	2SC3311Q,R	TRANSISTOR			D441	DAP209S	DIODE ARRAY
		Q434	DTC144ES	D TRANSISTOR			D442	DAN209S	DIODE ARRAY
		Q435	DTA144WS	D TRANSISTOR			D443	—	—
							D444	1SS133	DIODE
							D445	DAP209S	DIODE ARRAY
							D446	1SS133	DIODE
							OR	MA165	DIODE

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R401			QRD161J-472	CR
R402			QRD161J-564	CR
R403			QRD161J-105	CR
R404			QRD161J-104	CR
R405			QRD161J-153	CR
R406			QRD161J-152	CR
R407			QRD161J-391	CR
R408			QRD161J-394	CR
R409			QRD161J-103	CR
R410			QRD161J-474	CR
R411			QRD161J-473	CR
R412			QRD161J-681	CR
R413			QRD161J-153	CR
R414			QRD161J-103	CR
R415			QRD161J-105	CR
R416			QRD161J-105	CR
R417			QRD161J-104	CR
R418			QRD161J-104	CR
R419			QRD161J-104	CR
R420			QRD161J-104	CR
R421			QRD161J-102	CR
R422			QRD161J-183	CR
R423			PU58064	VR, V. LOCK
R424			QRD161J-333	CR
R425			—	—
R426			QRD161J-105	CR
R427			QRD161J-222	CR
R428			QRD161J-394	CR
R429			QRD161J-474	CR
R430			QRD161J-184	CR
R431			QRD161J-334	CR
R432			QRD161J-473	CR
R433			QRD161J-682	CR
R434			QRD161J-183	CR
R435			QRD161J-123	CR
R436			QRD161J-393	CR
R437			QRD161J-824	CR
R438			QRD161J-104	CR
R439			QRD161J-105	CR
R440			QRD161J-474	CR
R441			QRD161J-105	CR
R442			QRD161J-154	CR
R443			QRD161J-153	CR
R444			QRD161J-563	CR
R445			QRD161J-105	CR
R446			QRD161J-222	CR
R447			QRD161J-393	CR
R448			QRD161J-105	CR
R449			QRD161J-105	CR
R450			QRD161J-393	CR
R451			QRD161J-103	CR
R452			QRD161J-103	CR
R453			QRD161J-473	CR
R454			QRD161J-103	CR
R455			QRD161J-103	CR
R456			QRD161J-564	CR
R457			QRD161J-103	CR
R458			QRD161J-103	CR
R459			QRD161J-473	CR
R460			QRD161J-564	CR
R461			QRD161J-123	CR
R462			QRD161J-103	CR
R463			QRD161J-103	CR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R464			QRD161J-823	CR
R465			QRD161J-103	CR
R466			QRD161J-473	CR
R467			QRD161J-103	CR
R468			QRD161J-473	CR
R469			QRD161J-473	CR
R470			QRD161J-822	CR
R471			QRD161J-103	CR
R472			QRD161J-274	CR
R473			QRD161J-683	CR
R474			QRD161J-105	CR
R475			QRD161J-103	CR
R476			QRD161J-103	CR
R477			QRD161J-683	CR
R478			QRD161J-105	CR
R479			QRD161J-273	CR
R480			QRD161J-104	CR
R481			QRD161J-103	CR
R482			QRD161J-105	CR
R483			QRD161J-102	CR
R484			QRD161J-101	CR
R485			QRD161J-104	CR
R486			QRD161J-333	CR
R487			QRD161J-153	CR
R488			QRD161J-103	CR
R489			—	—
R490			QRD161J-103	CR
R491			QRD161J-472	CR
R492			QRD161J-102	CR
R493			QRD161J-563	CR
R494			QRD161J-333	CR
R495			QRD161J-153	CR
R496			QRD161J-123	CR
R497			QRD161J-472	CR
R498			QRD161J-393	CR
R499			—	—
R500			QRD161J-563	CR
R501			QRD161J-273	CR
R502			QRD161J-183	CR
R503			QRD161J-682	CR
R504			—	—
R505			—	—
R506			QRD161J-473	CR
R507			—	—
R508			QRD161J-394	CR
R509			QRD161J-103	CR
R510			—	—
R511			QRD161J-103	CR
R512			QRD161J-102	CR
R513			QRD161J-474	CR
R514			QRD161J-223	CR
R515			QRD161J-223	CR
R516			QRD161J-473	CR
R517			QRD161J-103	CR
R518			—	—
R519			QRD181J-473	CR
R520			QRD161J-473	CR
R521			QRD161J-473	CR
R522			QRD161J-222	CR
R523			—	—
R524			QRD161J-394	CR
R525			QRD161J-224	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION	#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R541			QRD161J-103	CR	C423		QFN31HJ-562	MY CAP	
R542			QRD161J-100	CR	C424		QCS31HJ-560	C CAP	
R543			QRD161J-103	CR	C425		QCS31HJ-270	C CAP	
R544			QRD161J-393	CR	C426		QEK61CM-106	E CAP	
R545			QRD161J-103	CR	C427		QEK61CM-106	E CAP	
R546			QRD161J-222	CR	C428		QEK61EM-475	E CAP	
R547			QRD161J-222	CR	C429		QEK61EM-475	E CAP	
R548			QRD161J-102	CR	C430		QFN31HJ-124	MY CAP	
R549			QRD161J-102	CR					
R550			QRD161J-103	CR	C431		QEPC1HM-225	NP CAP	
					C432		QFN31HJ-103	MY CAP	
R551			QRD161J-100	CR	C433		QEPC1HM-105G	NP CAP	
R552			QRD161J-103	CR	C434		QFN31HJ-124	MY CAP	
R553			QRD161J-393	CR	C435		QFN31HJ-124	MY CAP	
R554			QRD161J-514	CR	C436		QEK61CM-106	E CAP	
R555			QRD161J-472	CR	C437		QEK61CM-106	E CAP	
R556			QRD161J-103	CR	C438		QEK61CM-106	E CAP	
R557			QRD161J-123	CR	C439		QCVB1CN-103	CHIP CAP	
R558			QRD161J-123	CR	C440		QEK61CM-106	E CAP	
R559			QRD161J-823	CR					
R560			QRD161J-103	CR	C441		QFN31HJ-102	MY CAP	
					C442		QCB1HJ-331	C CAP	
R561			QRD161J-223	CR	C443		QEPC1HM-474G	NP CAP	
R562			QRD161J-393	CR	C444		QEK61HM-474	E CAP	
R563			QRD161J-102	CR	C445		QFN31HJ-102	MY CAP	
R564			QRD161J-103	CR	C446		QEK61HM-105	E CAP	
R565			QRD161J-103	CR	C447		QFN31HJ-472	MY CAP	
R566			—	—	C448		QFP42AJ-562	PP CAP	
R567			QRD161J-472	CR	C449		QEK61CM-106	E CAP	
R568			QRD167J-472	CR	C450		QEK61CM-106	E CAP	
R569			QRD161J-102	CR					
R570			QRD161J-184	CR	C451		QCS31HJ-271	C CAP	
					C452		QEK61HM-105	E CAP	
R571			QRD161J-822	CR	C453		QCB1HJ-102	C CAP	
R572			QRD161J-103	CR	C454		QEK61CM-226	E CAP	
R573			QRD161J-104	CR	C455		QEK61CM-106	E CAP	
R574			QRD161J-822	CR	C456		QCSB1HJ-330	C CAP	
R575			QRD161J-105	CR	C457		QCSB1HJ-330	C CAP	
R576			QRD161J-105	CR	C458		QCVB1CN-103	CHIP CAP	
R577			—	—	C459		QEK61CM-106	E CAP	
R578			—	—	C460		QFN31HJ-473	MY CAP	
R579			QRD161J-394	CR					
					C461		QFN31HJ-473	MY CAP	
RA401			QRB087J-472	RESISTOR ARRAY	C462		QFN31HJ-473	MY CAP	
RA402			QRB087J-472	RESISTOR ARRAY	C463		QEK61HM-224	E CAP	
					C464		QFN31HJ-683	MY CAP	
C401			QCB1HJ-102	C CAP	C465		QFN31HJ-104	MY CAP	
C402			QCB1HJ-102	C CAP	C466		QFN31HJ-183	MY CAP	
C403			QCB1HJ-102	C CAP	C467		QCSB1HJ-470	C CAP	
C404			QFN31HJ-333	MY CAP	C468		QCSB1HJ-470	C CAP	
C405			QCB1HJ-121	C CAP	C469		QFN31HJ-102	MY CAP	
C406			QEK61CM-106	E CAP	C470		QCB1HJ-101	C CAP	
C407			QEK61CM-106	E CAP					
C408			QEK60JM-476	E CAP	C471		QCB1HJ-101	C CAP	
C409			QFN31HJ-102	MY CAP	C472		QFN31HJ-683	MY CAP	
C410			QCVB1CN-103	CHIP CAP	C473		QCB1HJ-121	C CAP	
C411			QCB1HJ-121	C CAP	C481		QFN31HJ-102	MY CAP	
C412			QEK61HM-105	E CAP	C482		QEK61CM-106	E CAP	
C413			QEK61EM-335	E CAP	C483		QEK61CM-106	E CAP	
C414			QFN31HJ-104	MY CAP	C484		QFN31HJ-102	MY CAP	
C415			QEK61CM-476	E CAP	C485		QEK61AM-476	E CAP	
C416			QFN31HJ-124	MY CAP					
C417			QCF31HP-102	C CAP	L401		PU53223-101G	COIL	
C418			QCF31HP-103	C CAP	L402		PU53223-101G	COIL	
C419			QEE51CM-106	T CAP					
C420			QCF31HP-103	C CAP	Δ CF401		PU55812	CERAMIC FILTER	
					Δ PTH401		PU58802-2R2	POSISTOR	
C421			QCF31HP-103	C CAP					
C422			QFN31HK-124	MY CAP					

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
Δ	X401		PU58217-5	CRYSTAL
	PN1		PU59391	STYLE PIN, X3
	SP1		PU57215-2	SPACER, X10
	TP		PU57545	TEST PIN,GND
	CN401		PU58844-2	CAP HOUSING
	CN402		PU58844-2	CAP HOUSING
	CN403		PU58844-8	CAP HOUSING
	CN404		PU58844-4	CAP HOUSING
	CN405		—	—
	CN406		PU58844-4	CAP HOUSING
	CN407		PU58844-5	CAP HOUSING
	CN408		PU58844-3	CAP HOUSING

			PU22316B-02	TUNER/IF BOARD ASS'Y [04], (E/EG)
Δ	TNR1		PU36155-2	TUNER
	IC1		M51365SP	INTEGRATED CIRCUIT
Δ	IC2		M50440-394SP	INTEGRATED CIRCUIT
	IC3		M58656P	INTEGRATED CIRCUIT
	IC4		H8D7013	INTEGRATED CIRCUIT
	Q1		2SC3354S,T	TRANSISTOR
	Q2		—	—
	Q3		2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
	Q4		2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
	Q5		2SA933S(RS)	TRANSISTOR
		OR	2SA1309R,S	TRANSISTOR
	Q6		2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
	Q7		2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
	Q8		—	—
Δ	Q9		2SA933S(RS)	TRANSISTOR
Δ	Q10		2SA933S(RS)	TRANSISTOR
Δ	Q11		2SA933S(RS)	TRANSISTOR
Δ	Q12		2SA933S(RS)	TRANSISTOR
	Q13		2SK381T	FE TRANSISTOR
	Q14		2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
	Q15		2SD1292T103Q,R	TRANSISTOR
		OR	2SC26550,Y	TRANSISTOR
	Q16		2SD1292T103Q,R	TRANSISTOR
		OR	2SC26550,Y	TRANSISTOR
	Q17		2SB810H,J	TRANSISTOR
	Q18		DTA124ES	D TRANSISTOR
	Q24		2SC3354S,T	TRANSISTOR
	D1		1SS133	DIODE
	D2		1SS133	DIODE
	D3		1SS133	DIODE
	D4		1SS133	DIODE
	D5		1SS133	DIODE
	D6		HZ30-2	ZENER DIODE
		OR	RD33EB1	ZENER DIODE
	D7		MTZ10B	ZENER DIODE
		OR	RD10ES-T1B2	ZENER DIODE
	D8		—	—
	D9		—	—
	D10		E-452-2	C.R DIODE

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
	D11		RD6.2ES-T1B1	ZENER DIODE
	D12		1SS133	DIODE
	R1		QRD161J-151	CR
	R2		QRD161J-562	CR
	R3		QRD161J-152	CR
	R4		QRD161J-470	CR
	R5		QRD161J-331	CR
	R6		QRD161J-681	CR
	R7		QRD161J-101	CR
	R8		QRD161J-100	CR
	R9		—	—
	R10		QRD161J-824	CR
	R11		QVZ3518-472	VR, RF AGC
	R12		QRD161J-222	CR
	R13		QRD161J-562	CR
	R14		QRD161J-332	CR
	R15		—	—
	R16		QVZ3518-103	VR, Y LEVEL
	R17		QRD161J-331	CR
	R18		QRD161J-561	CR
	R19		QRD161J-470	CR
	R20		QRD161J-561	CR
	R21		—	—
	R22		—	—
	R23		QRD161J-473	CR
	R40		QRD161J-182	CR
	R41		QRD161J-272	CR
	R42		QVZ3518-103	VR, COLOUR LEVEL
	R43		QRD161J-123	CR
	R44		QRD161J-123	CR
	R45		QRD161J-331	CR
	R46		QRD161J-222	CR
	R47		—	—
	R48		—	—
	R49		QRD161J-331	CR
	R50		QRD161J-680	CR
	R51		QRD161J-222	CR
	R52		QRD161J-471	CR
	R53		QRD161J-103	CR
	R54		QRD161J-332	CR
	R55		QRD161J-680	CR
	R56		QRD161J-102	CR
	R57		QRD161J-471	CR
	R58		QRD161J-223	CR
	R59		QRD161J-223	CR
	R60		QRD161J-103	CR
	R61		QRD161J-334	CR
	R62		QRD161J-103	CR
	R75		QRD161J-472	CR
	R76		QRD161J-103	CR
	R77		QRD161J-153	CR
	R78		QRD161J-472	CR
	R79		QRD161J-103	CR
	R80		QRD161J-153	CR
	R81		QRD161J-472	CR
	R82		QRD161J-103	CR
	R83		QRD161J-153	CR
	R84		QRD161J-472	CR
	R85		QRD161J-103	CR
	R86		QRD161J-153	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R87			QRD161J-104	CR
R88			QRD161J-153	CR
R89			QRD161J-822	CR
R90			—	—
R91			QRD161J-472	CR
R92			QRD161J-562	CR
R93			QRD161J-103	CR
R94			QRD161J-472	CR
R95			QRD161J-121	CR
R96			QRD161J-103	CR
R97			QRD161J-103	CR
R98			QRD161J-153	CR
R99			—	—
R100			QRD161J-101	CR
R101			QRD161J-222	CR
R102			QRD161J-222	CR
R103			QRD161J-222	CR
R104			QRD161J-222	CR
R105			QRD161J-222	CR
R106			QRD161J-102	CR
R107			QRD161J-472	CR
R108			QRD161J-103	CR
R109			—	—
R110			QRD161J-104	CR
R111			QRD161J-104	CR
R112			QRD161J-222	CR
R119			QRD161J-331	CR
R130			QRD161J-331	CR
R131			QRD161J-102	CR
R132			—	—
R133			QRD161J-153	CR
R134			QRD161J-182	CR
R140			QRD161J-392	CR
R141			QRD161J-222	CR
R142			QRD161J-331	CR
RA1			QRB047J-104	REGISTOR ARRAY
C1			QCSB1HJ-100	C CAP
C2			—	—
C3			QCXB1CK-222	C CAP
C4			QCB1HK-102	C CAP
C5			QCB1HK-102	C CAP
C6			—	—
C7			PU57601-474ME	OS CAP
C8			QETC1CM-336	E CAP
C9			QCXB1CK-222	C CAP
C10			—	—
C11			QETC1HM-474	E CAP
C12			QCT25PH-270	C CAP
C13			QCXB1CK-222	C CAP
C14			QETC1CM-336	E CAP
C23			QETC1HM-105	E CAP
C30			QETC1CM-336	E CAP
C31			QCSB1HJ-470	C CAP
C32			—	—
C33			—	—

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
C34			QETC1CM-336	E CAP
C35			QETC1CM-106	E CAP
C36			QCC11EK-223	C CAP
C37			QETC1HM-474	E CAP
C38			—	—
C39			QFN31HK-104	MY CAP
C40			QETC1CM-106	E CAP
C41			QETC1CM-106	E CAP
C42			QETC1CM-106	E CAP
C43			QETC1CM-106	E CAP
C44			QETC1HM-225	E CAP
C45			—	—
C46			QFV81HJ-474	TF CAP
OR			QFZ9011-474	TF CAP
C47			QFN31HK-223	MY CAP
C48			QCB1HK-102	C CAP
C49			QCB1HK-102	C CAP
C50			—	—
C51			QCT25CH-220	C CAP
C52			QCT25CH-270	C CAP
C53			QCVB1CM-103	C CAP
C54			QCVB1CM-103	C CAP
C55			QETC1CM-106	E CAP
C56			QETC1CM-336	E CAP
C57			QETC1CM-337	E CAP
C58			QCB1HK-102	C CAP
C59			QET61AM-336	E CAP
C60			QETC1AM-107	E CAP
C61			QET61CM-106	E CAP
C62			—	—
C63			QETC1HM-106	E CAP
C64			—	—
C65			QETC1CM-336	E CAP
C66			QETC1AM-107	E CAP
C70			QCB1HK-102	C CAP
C71			QCB1HK-102	C CAP
L1			—	—
L2			PU57717-1R0	PEAKING COIL
L3			PU57717-1R5	PEAKING COIL
L4			PU59152-6R8K	PEAKING COIL
L5			PU59152-120J	PEAKING COIL
L6			PU59152-6R8K	PEAKING COIL
L7			—	—
L8			PU59152-220J	PEAKING COIL
L9			—	—
L10			PU59152-100J	PEAKING COIL
L11			PU59152-R22M	PEAKING COIL
Δ T1			PU59402	TRAP COIL, FTZ TRAP
T2			PU59308	COIL, VCO
T3			—	—
T4			—	—
T5			PU55184	IFT, SYNC DET
CF3			PU32990-2	CERAMIC FILTER
Δ CP1			ICP-F10	CIRCUIT PROTECTOR
SAW1			PU35557-4	SAW FILTER
Δ X1			PU58554-2	CRYSTAL, 4.0 MHz

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		CN1	PU58844-7	CAP HOUSING
		CN2	PU58844-4	CAP HOUSING
		CN3	PU58844-3	CAP HOUSING
		CN4	PU58844-2	CAP HOUSING
		CN5	—	—
		CN6	PU59374	JACK
		CN7	PU58844-3	CAP HOUSING
Δ		RF1	PU59429M	RF CONV & MIXER
		SLD1	PQ31327	SHIELD CASE
		SLD2	PQ31328-1-1	SHIELD COVER
		SLD3	PQ42506	SHIELD PLATE

			PU22316A-02	TUNER/IF BOARD ASS'Y [04], (EK)
Δ		TNR1	PU36180-2	V/U TUNER
Δ		IC1	M51365SP	INTEGRATED CIRCUIT
Δ		IC2	M50440-391SP	INTEGRATED CIRCUIT
		IC3	M58655P	INTEGRATED CIRCUIT
		IC4	H8D7013	INTEGRATED CIRCUIT
		Q1	2SC3354S,T	TRANSISTOR
		Q2	2SD1468S(RS)	TRANSISTOR
		OR	2SD1450S,T	TRANSISTOR
		Q3	2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
		Q4	—	—
		Q5	2SA933S(RS)	TRANSISTOR
		OR	2SA1309R,S	TRANSISTOR
		Q6	2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
		Q7	2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
		Q8	—	—
		Q9	—	—
		Q10	—	—
		Q11	—	—
		Q12	—	—
		Q13	2SK381	FET
		Q14	2SC1740S(RS)	TRANSISTOR
		OR	2SC3311AR,S	TRANSISTOR
		Q15	2SD1292T103Q,R	TRANSISTOR
		OR	2SC2655O,Y	TRANSISTOR
		Q16	2SD1292T103Q,R	TRANSISTOR
		OR	2SC2655O,Y	TRANSISTOR
		Q17	2SB810H,J	TRANSISTOR
		Q18	DTA124ES	D TRANSISTOR
		Q19	2SC1740S(RS)	TRANSISTOR
		D1	1SS133	DIODE
		D2	1SS133	DIODE
		D3	1SS133	DIODE
		D4	1SS133	DIODE
		D5	1SS133	DIODE
		D6	HZ30-2	ZENER DIODE
		OR	RD33EB1	ZENER DIODE
		D7	MTZ10B	ZENER DIODE
		OR	RD10ES-T1B2	ZENER DIODE
		D8	—	—
		D9	—	—
		D10	E-452-2	C.R.DIODE
		D11	RD6.2ES-T1B1	ZENER DIODE

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R1	QRD161J-750	CR
		R2	QRD161J-562	CR
		R3	QRD161J-152	CR
		R4	QRD161J-470	CR
		R5	QRD161J-331	CR
		R6	QRD161J-681	CR
		R7	QRD161J-101	CR
		R8	QRD161J-470	CR
		R9	QRD161J-332	CR
		R10	QRD161J-824	CR
		R11	QVZ3518-472	VR, RF AGC
		R12	QRD161J-222	CR
		R13	QRD161J-562	CR
		R14	QRD161J-332	CR
		R15	—	—
		R16	QRD161J-222	CR
		R17	QRD161J-271	CR
		R18	QRD161J-561	CR
		R19	QRD161J-470	CR
		R20	QRD161J-561	CR
		R21	—	—
		R22	—	—
		R23	—	—
		R24	—	—
		R25	QRD161J-471	CR
		R26	QRD161J-681	CR
		R27	QRD161J-681	CR
		R28	QRD161J-391	CR
		R29	QRD161J-332	CR
		R30	QRD161J-472	CR
		R31	QRD161J-102	CR
		R32	QVZ3518-332	VR, AUDIO LEVEL
		R33	QRD161J-472	CR
		R34	QRD161J-103	CR
		R35	—	—
		R36	—	—
		R37	—	—
		R38	—	—
		R39	—	—
		R40	QRD161J-182	CR
		R41	QRD161J-272	CR
		R42	QVZ3518-103	VR, COLOUR LEVEL
		R43	QRD161J-123	CR
		R44	QRD161J-123	CR
		R45	QRD161J-331	CR
		R46	QRD161J-222	CR
		R47	—	—
		R48	—	—
		R49	—	—
		R50	—	—
		R51	—	—
		R52	QRD161J-471	CR
		R53	QRD161J-103	CR
		R54	QRD161J-332	CR
		R55	QRD161J-680	CR
		R56	QRD161J-102	CR
		R57	QRD161J-471	CR
		R58	QRD161J-223	CR
		R59	QRD161J-223	CR
		R60	QRD161J-103	CR
		R61	QRD161J-334	CR
		R62	QRD161J-103	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION	#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R87			QRD161J-104	CR	C23			QETC1HM-105	E CAP
R88			QRD161J-153	CR	C24			QFN31HK-103	MY CAP
R89			—	—	C25			QETC1HM-105	E CAP
R90			—	—	C26			—	—
R91			QRD161J-472	CR	C27			QEK61HM-474	E CAP
R92			QRD161J-562	CR	C30			QETC1CM-336	E CAP
R93			QRD161J-152	CR	C31			QCSB1HJ-470	C CAP
R94			QRD161J-472	CR	C32			—	—
R95			QRD161J-121	CR	C33			—	—
R96			QRD161J-103	CR	C34			—	—
R97			QRD161J-103	CR	C35			QETC1CM-106	E CAP
R98			QRD161J-153	CR	C36			QCC11EK-223	C CAP
R99			—	—	C37			QETC1HM-474	E CAP
R100			QRD161J-101	CR	C38			—	—
R101			QRD161J-222	CR	C39			QFN31HK-104	MY CAP
R102			QRD161J-222	CR	C40			—	—
R103			QRD161J-222	CR	C41			—	—
R104			QRD161J-222	CR	C42			—	—
R105			QRD161J-222	CR	C43			—	—
R106			QRD161J-102	CR	C44			QETC1HM-225	E CAP
R107			QRD161J-272	CR	C45			—	—
R108			—	—	C46			QFV81HJ-474	TF CAP
R109			—	—	OR			QFZ9011-474	MM CAP
R110			QRD161J-104	CR	C47			QFN31HK-223	MY CAP
R111			QRD161J-104	CR	C48			—	—
R112			QRD161J-222	CR	C49			QCB81HK-102	C CAP
R119			QRD161J-331	CR	C50			—	—
R130			QRD161J-331	CR	C51			QCT25CH-220	C CAP
R131			QRD161J-102	CR	C52			QCT25CH-270	C CAP
R132			—	—	C53			QCVB1CM-103	C CAP
R133			QRD161J-153	CR	C54			QCVB1CM-103	C CAP
R134			QRD161J-182	CR	C55			QETC1CM-106	E CAP
R135			—	—	C56			QETC1CM-336	E CAP
R136			—	—	C57			QETC1CM-107	E CAP
R137			QRD161J-152	CR	C58			QCB81HK-102	C CAP
RA1			QRB047J-104	REGISTOR ARRAY	C59			QET61AM-336	E CAP
C1			—	—	C60			QETC1AM-107	E CAP
C2			QCB81HK-102	C CAP	C61			QET61AM-106	E CAP
C3			QCXB1CK-222	C CAP	C62			—	—
C4			QCB81HK-102	C CAP	C63			QETC1HM-106	E CAP
C5			QCB81HK-102	C CAP	C64			—	—
C6			—	—	C65			QETC1CM-336	E CAP
C7			PU57601-474ME	OS CAP	C66			QETC1AM-107	E CAP
C8			QETC1CM-336	E CAP	C75			QFN31HK-123	MY CAP
C9			QCXB1CK-222	C CAP	L1			—	—
C10			QCSB1HJ-330	C CAP	L2			PU57717-1R0	PEAKING COIL
C11			QETC1HM-474	E CAP	L3			PU57717-1R5	PEAKING COIL
C12			QCT25RH-220	C CAP	L4			PU59152-6R8K	PEAKING COIL
C13			QCXB1CK-222	C CAP	L5			PU59152-150J	PEAKING COIL
C14			QETC1CM-336	E CAP	L6			PU59152-6R8K	PEAKING COIL
C15			—	—	L7			PU59152-6R8K	PEAKING COIL
C16			—	—	L8			PU59152-220J	PEAKING COIL
C17			—	—	L9			—	—
C18			—	—	L10			PU59152-100J	PEAKING COIL
C19			QETC1CM-336	E CAP	T1			—	—
C20			QCXB1CK-222	C CAP	T2			PU59308	COIL, VCO
C21			QCF31HP-223	C CAP	T3			—	—
C22			QCSB1HJ-100	C CAP	T4			PU59243	H. TRAP
					T5			PU55184	IFT, SYNC DET
					CF1			PU57707	CERAMIC FILTER, 6.0MHz

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		CF2	PU59242-3	CERAMIC FILTER, 6.0MHz
		CF3	PU32990-3	CERAMIC FILTER, 6.0MHz
Δ		CP1	ICP-F10	CIRCUIT PROTECTOR
		SAW1	PU32987-4	SAW FILTER
Δ		X1	PU58554-2	CRYSTAL, 4.0 MHz
		HD1	PU36217	TUNER HOLDER
		CN1	PU58844-7	CAP HOUSING
		CN2	PU58844-4	CAP HOUSING
		CN3	—	—
		CN4	PU58844-4	CAP HOUSING
Δ		RF1	PU58053S-03	RF CONV & MIXER
		SLD1	PQ31327	SHIELD CASE
		SLD2	PQ31328-1-1	SHIELD COVER
		SLD3	PQ42506	SHIELD PLATE

			PU22321C	DISPLAY PWB ASS'Y [05], (E)
			PU22321A	DISPLAY PWB ASS'Y [05], (EG)
			PU22321B	DISPLAY PWB ASS'Y [05], (EK)
		IC1	UPD7538ACU-201	INTEGRATED CIRCUIT
		IC101	MSC1124BRS	INTEGRATED CIRCUIT
		Q1	DTC124EF	D TRANSISTOR
		Q2	DTA114EF	D TRANSISTOR
		Q101	2SB911MQ,R	TRANSISTOR
		D1	RD7.5EB1	ZENER DIODE
		OR	HZ7B2	ZENER DIODE
		D2	1SS132	DIODE
		D3	—	—
Δ		D4	RD3.0ESB2	ZENER DIODE
		D101	RD24EB2	ZENER DIODE
		OR	RD24ESB2	ZENER DIODE
		D212	SLH-34VC3F	LED, STEREO, (E/EG)
		D213	SLH-34MC3F	LED, BILINGAL, (E/EG)
		D214	—	—
		D215	SLH-34YC3F	LED, SC
		R1	QRD161J-102	CR
		R2	QRD161J-102	CR
		R3	QRD161J-103	CR
		R4	QRD161J-102	CR
		R5	QRD161J-102	CR
		R6	QRD161J-103	CR
		R7	QRD161J-472	CR
		R8	QRD161J-273	CR
		R9	QRD161J-333	CR
		R10	QRD161J-104	CR
		R101	QRD161J-682	CR
		R102	QRD161J-104	CR
		R103	QRD161J-103	CR
		R104	QRD161J-151	CR
		R105	QRD161J-103	CR
		R106	QRD161J-104	CR
		R107	QRD161J-151	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R108	QRD161J-103	CR
		R109	QRD161J-103	CR
		R110	QRD161J-103	CR
		C1	QCB11HJ-101	C CAP
		C2	QCB11HJ-101	C CAP
		C3	QER41CM-106	E CAP
		C4	QER41HM-106	E CAP
		C5	QER41HM-106	E CAP
		C6	QCF31HP-103	C CAP
		C7	QEP41HM-335	NP CAP
		C8	QEP41HM-335	NP CAP
		C9	QEP41HM-335	NP CAP
		C10	—	—
		C101	QETA1VM-476	E CAP
		C102	QER41HM-475	E CAP
		C103	QER41HM-105	E CAP
		C104	QER41HM-105	E CAP
		C105	QER41CM-106	E CAP
		C106	QER41CM-106	E CAP
		C107	QFN41HJ-223	MY CAP
		C108	QER41HM-225	E CAP
		CF1	PU59109	CERAMIC FILTER
		FDP1	PU58961-3	FDP, (E/EK)
		FDP1	PU58961-4	FDP, (EG)
		HD1	PQ30906A-2	D. HOLDER ASS'Y
		HD2	PQ40795	LED HOLDER
		CL1	PU59311-2	WIRE CLAMP

			PU36129E	TERMINAL PWB ASS'Y [06], (E)
			PU36129A	TERMINAL PWB ASS'Y [06], (EG)
			PU36130A	TERMINAL PWB ASS'Y [06], (EK)
		Q1	2SB643R,S	TRANSISTOR, (E/EG)
		Q2	—	—
		Q3	—	—
		Q4	2SB810H,J	TRANSISTOR, (E/EG)
		Q10	2SC2021Q,R,S	TRANSISTOR
		Q11	DTC124EF	D TRANSISTOR
		D1	1SS133	DIODE, (E/EG)
		OR	MA165	DIODE, (E/EG)
		D2	—	—
		D3	1SS133	DIODE, (E/EG)
		OR	MA165	DIODE, (E/EG)
		D4	—	—
		D5	1SS133	DIODE, (E/EG)
		OR	MA165	DIODE, (E/EG)
		D6	1SS133	DIODE
		OR	MA165	DIODE
		D7	1SS133	DIODE, (E/EG)
		OR	MA165	DIODE, (E/EG)
		D8	—	—
		D9	—	—
		D10	1SS133	DIODE
		OR	MA165	DIODE
		D11	1SS133	DIODE
		OR	MA165	DIODE
		D12	1SS133	DIODE
		OR	MA165	DIODE

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		D13	1SS133	DIODE
		OR	MA165	DIODE
		R1	—	—
		R2	—	—
		R3	QRD161J-102	CR
		R4	QRD161J-102	CR
		R5	QRD161J-103	CR, (E/EG)
		R6	QRD161J-103	CR, (E/EG)
		R7	QRD161J-102	CR
		R8	QRD161J-392	CR, (E/EG)
		R9	QRD161J-392	CR, (E/EG)
		R10	QRD161J-102	CR
		R11	QRD161J-393	CR, (E/EG)
		R12	QRD161J-222	CR, (E/EG)
		R22	QRD161J-183	CR, (E/EG)
		R23	QRD161J-392	CR, (E/EG)
		R24	QRD161J-102	CR
		R25	QRD161J-102	CR
		R26	QRD161J-750	CR
		R27	—	—
		R28	—	—
		R29	—	—
		R30	QRD161J-331	CR
		R31	QRD161J-103	CR
		R32	QRD161J-122	CR
		R33	QRD161J-223	CR
		C4	QEK61AM-476	E CAP
		C10	QCF31HP-223	C CAP
			PQ30975C	CONNECTOR ASS'Y, (E)
			PQ30975A	CONNECTOR ASS'Y (EG)
			PQ30975B	CONNECTOR ASS'Y (EK)
		CL1	PU56729	WIRE CLAMP
		CL2	PU55379	MINI CLAMP, (EK)

			PU22314C-01	SWITCH PWB ASS'Y [07], (E)
			PU22314A-01	SWITCH PWB ASS'Y [07], (EG)
			PU22314B-01	SWITCH PWB ASS'Y [07], (EK)
		Q301	2SD638R,S	TRANSISTOR
		Q302	DTC124ES	TRANSISTOR
		Q303	DTC124ES	TRANSISTOR
		D1	1SS133	DIODE, (EG)
		D2	—	—
		D3	1SS133	DIODE
		R301	QRD161J-272	CR
		R302	QRD161J-272	CR
		R303	QRD161J-272	CR
		R304	QRD161J-272	CR
		R305	QRD161J-562	CR
		R306	QRD161J-221	CR, (E/EG)
		R307	QRD161J-222	CR, (E/EG)
		R308	QRD161J-272	CR, (E/EG)
		R309	—	—
		R310	QRD161J-102	CR
		R311	QRD161J-561	CR
		R312	QRD161J-102	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
		R313	—	—
		R314	QRD161J-471	CR
		R315	—	—
		R316	—	—
		R317	—	—
		R318	QRD161J-822	CR
		R319	QRD161J-681	CR
		R401	PU57925	VR, TRACKING
		R402	PU57927	VR, SHARPNESS
		R403	PU59570	VR, SLOW TRACKING
		R404	PU57928	VR, PHONE LEVEL
		R405	PU58265-2	SLIDE VR, REC LEVEL
		C301	QFN31HJ-102	MY CAP
		S16	QSP2256-003	PUSH SWITCH, TIMER
		S17	—	—
		S18	—	—
		S19	PU57551	TACT SWITCH, SEARCH
		S20	—	—
		S21	PU57551	TACT SWITCH, CAN/SKIP
		S22	PU57551	TACT SWITCH, STORE
		S23	PU57551	TACT SWITCH, FINE (+)
		S24	PU57551	TACT SWITCH, FINE (-)
		S25	—	—
		S26	—	—
		S27	—	—
		S28	—	—
		S29	PU57551	TACT SWITCH, INITIAL
		S401	PU58486-1-1	SLIDE SWITCH, SOURCE SEL
		S402	PU58487-1-1	SLIDE SWITCH, MEMORY
		S407	PU58488-1-1	SLIDE SWITCH, LEVEL IND.
		S408	—	—
		S409	PU58486-1-1	SLIDE SWITCH, A LIMITER
		S415	PU58487-1-1	SLIDE SWITCH, A OUT MONI
		S416	PU58487-1-1	SLIDE SWITCH, A OUT
		S417	PU58486-1-1	SLIDE SWITCH, A SEL, (E/EG)
		J401	PU58356-2	HEAD PHONE JACK
		J402	PU58355-2	MIC JACK

			PU35542C-07	PREAMP/MDA BOARD ASS'Y [08]
—DRUM MDA SECTION—				
		IC1	AN6671K	INTEGRATED CIRCUIT
		Q1	2SB1052	TRANSISTOR
		OR	2SB941P, Q	TRANSISTOR
		D1	RD5.1ES-T1B	ZENER DIODE
		OR	HZS5.1EB	ZENER DIODE
		R1	QRD161J-562	CR
		R2	QRD161J-123	CR
		R3	QRD161J-562	CR
		R4	QRD161J-222	CR
		R5	QRD161J-223	CR
		R6	QRD161J-223	CR
		R7	QRD161J-103	CR
		R8	QRD161J-222	CR
		R9	QRD161J-123	CR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R10			QRD161J-151	CR
R11			QRD161J-151	CR
R12			QRD161J-102	CR
R13			QRD161J-102	CR
R14			QRD161J-391	CR
R15			QRD161J-333	CR
R16			QRD161J-562	CR
R17			QRD161J-223	CR
R18			QRD161J-222	CR
R19			QRD161J-222	CR
R20			QRX016J-R68	MFR
	OR		QRX019J-R68S	MFR
R21			QRD161J-222	CR
C1			QFN31HK-473	MY CAP
C2			QFN31HK-333	MY CAP
C3			QFN31HK-473	MY CAP
C4			QET61HM-225	E CAP
C5			QET61HM-225	E CAP
C6			QEK61HM-225	E CAP
C7			QET61HM-225	E CAP
C8			QFN31HK-152	MY CAP
C9			QFZ9011-104	MY CAP
	OR		QFJ41HK-104	MY CAP
C10			QFN31HK-104	MY CAP
C11			QFN31HK-104	MY CAP
C12			QET61EM-106	E CAP
CN1			PU57593-10	CAP HOUSING
CN2			PU49215-108	CAP HOUSING
CN3			PU49215-102	CAP HOUSING
—PREAMP SECTION—				
IC101			HA11752	INTEGRATED CIRCUIT
Q101			2SC2021Q,R,S	TRANSISTOR
Q102			2SC2021Q,R,S	TRANSISTOR
Q103			2SC2021Q,R,S	TRANSISTOR
D101			1SS133	DIODE
R101			QRD161J-681	CR
R102			QRD161J-272	CR
R103			QRD161J-272	CR
R104			QRD161J-272	CR
R105			QRD161J-100	CR
R106			QRD161J-221	CR
R107			QRD161J-221	CR
R108			QRD161J-123	CR
R109			QRD161J-123	CR
R110			QRD161J-561	CR
R111			QRD161J-561	CR
R112			QRD161J-103	CR
R113			QRD161J-103	CR
R114			QRD161J-102	CR
R115			QRD161J-681	CR
R116			QRD161J-224	CR
R117			QRD161J-562	CR
R118			QRD161J-472	CR
C101			QEE41EM-105	T CAP
C102			QCF11HP-103	C CAP
C103			QCF11HP-103	C CAP
C104			QCF11HP-103	C CAP

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
C105			QER60JM-476	E CAP
C106			QCF11HP-103	C CAP
C107			QCS11HJ-471	C CAP
C108			QCS11HJ-471	C CAP
C109			QCF11HP-103	C CAP
C110			QCF11HP-103	C CAP
C111			QCF11HP-102	C CAP
C112			QCF11HP-102	C CAP
C113			QER61HM-105	E CAP
C114			QER61HM-105	E CAP
C115			QCF11HP-102	C CAP
C116			QER61HM-224	E CAP
C117			QCF11HP-103	C CAP
C118			QCF11HP-102	C CAP
C119			QCS11HJ-331	C CAP
C120			QCF11HP-103	C CAP
C121			QER60JM-476	E CAP
L101			PU53223-101G	PEAKING COIL
L102			PU53223-221J	PEAKING COIL
L103			PU53223-101G	PEAKING COIL
CN101			PU49215-108	CAP HOUSING
CN102			PU49215-112	CAP HOUSING
SLD1			PQ41720A-4	SHIELD CASE ASSEMBLY
TP			PU45908-2	TEST PIN, TP101

			PU36289A	VPS/REMAIN BOARD ASS'Y [09], (E/EG ONLY)
— VPS SECTION —				
IC1			HD49703NT	INTEGRATED CIRCUIT
IC2			M5278L05	INTEGRATED CIRCUIT
Q1			2SB641R,S	TRANSISTOR
Q2			2SC3327A	TRANSISTOR
	OR		2SC2878A	TRANSISTOR
Q3			2SD637R,S	TRANSISTOR
D1			1SS133	DIODE
D2			1SS133	DIODE
D3			1SS133	DIODE
D4			1SS133	DIODE
D5			1SS133	DIODE
R1			QRD161J-103	CR
R2			QRD161J-103	CR
R3			QRD161J-102	CR
R4			QRD161J-102	CR
R5			QRD161J-102	CR
R6			QRD161J-473	CR
R7			QRD161J-103	CR
R8			QRD161J-391	CR
R9			QRD161J-562	CR
R10			QRD161J-102	CR
R11			QRD161J-473	CR
R12			QRD161J-562	CR
R13			QRD161J-105	CR
R14			QRD161J-472	CR
R15			QRD161J-472	CR
R16			QRD161J-472	CR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R17			QRD161J-472	CR
R18			QRD161J-562	CR
R19			QRD161J-563	CR
R20			QRD161J-222	CR
R21			QRD161J-222	CR
R22			QRD161J-222	CR
R23			QRD161J-222	CR
R24			QRD161J-472	CR
R25			QRD161J-682	CR
R26			QRD161J-472	CR
R27			QRD161J-102	CR
R28			QRD161J-103	CR
R29			QRD161J-103	CR
R30			QRD161J-184	CR
R31			QRD161J-103	CR
R32			QRD161J-332	CR
R33			QRD161J-561	CR
R34			QRD161J-474	CR
R35			QRD161J-474	CR
R36			QRD161J-332	CR
R37			QRD161J-103	CR
RA1			RNBH5A224	REGISTOR NETWORK
C1			QETC1CM-336	E CAP
C2			QCS31HJ-681	C CAP
C3			QETC1CM-106	E CAP
C4			QCS31HJ-391	C CAP
C5			QCT25CH-390	C CAP
C6			QFN31HJ-103	MY CAP
C7			QFN31HJ-102	MY CAP
C8			QFN31HJ-102	MY CAP
C9			QETC1CM-336	E CAP
C10			QETC1CM-336	E CAP
C11			QCF31HP-473	C CAP
C12			QETC1CM-336	E CAP
C13			QETC1CM-336	E CAP
C14			QETC1CM-336	E CAP
C15			QCS31HJ-391	C CAP
C16			QETC1HM-335	E CAP
C17			QETC1HM-105	E CAP
C18			QETC1HM-106	E CAP
C19			QCT25CH-390	C CAP
C20			QCT25CH-150	C CAP
C21			QETC1CM-336	E CAP
C22			QCT25CH-100	C CAP
T1			PU58484	COIL
TP			PU56008	TEST PIN, TP1-6
— REMAIN SECTION —				
IC801			M50740-616SP	INTEGRATED CIRCUIT
IC802			UPD4013BC	INTEGRATED CIRCUIT
			OR TC4013BP	INTEGRATED CIRCUIT
D801			RD7.5EB2	ZENER DIODE
D802			1SS133	DIODE
R801			QRD161J-472	CR
R802			QRD161J-103	CR
R803			QRD161J-821	CR
R804			QRD161J-105	CR
R805			QRD161J-103	CR
R806			QRD161J-103	CR
R807			QRD161J-472	CR
R808			QRD161J-472	CR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
R809			QRD161J-103	CR
R810			QRD161J-103	CR
R811			QRD161J-472	CR
R812			QRD161J-103	CR
R813			QRD161J-103	CR
R814			QRD161J-104	CR
R815			QRD161J-103	CR
R816			QRD161J-102	CR
R817			QRD161J-102	CR
R818			QRD161J-102	CR
R819			QRD161J-102	CR
R820			QRD161J-103	CR
R821			QRD161J-103	CR
R822			QRD161J-102	CR
R823			QRD161J-102	CR
R824			QRD161J-102	CR
R825			QRD161J-102	CR
RA801			QRB047J-103	RESISTOR ARRAY
RA802			QRB127J-103	RESISTOR ARRAY
C801			QEK61HM-105	E CAP
C802			QCS31HJ-390	C CAP
C803			QCS31HJ-390	C CAP
C804			QEE51CM-106	T CAP
C805			QCF31HP-223	C CAP
C806			QCF31HP-102	C CAP
C807			QCF31HP-102	C CAP
C808			QCF31HF-223	C CAP
C809			QCF31HP-223	C CAP
L801			PU53223-100J	PEAKING COIL
CF801			PU56292	CERAMIC FILTER
CN801			PU58844-13	CAP HOUSING
CN802			PU58844-8	CAP HOUSING
CN803			PU58844-5	CAP HOUSING

			PU36123A	POWER/IFR PWB ASS'Y [11], (E/EG)
			PU36123B	POWER/IFR PWB ASS'Y [11], (EK)
IC201			LA7225	INTEGRATED CIRCUIT
D201			SLP-981C-50	LED, POWER, (E/EG)
			OR SLR-34VC4	LED, POWER, (E/EG)
D218			SLR-34MT4	LED, STAND BY, (EK)
R201			QRD161J-102	CR
R202			QRD161J-104	CR
R203			QRD161J-223	CR
R204			QRD161J-681	CR
R205			QRD161J-120	CR
R206			—	—
R207			QRD161J-152	CR
C201			QFJ41HJ-102	C CAP
C202			QFJ41HK-273	MY CAP
C203			QEK61HM-105	E CAP
C204			QEK61HM-225	E CAP
C205			—	—
C206			QEK61AM-476	E CAP
S201			PU57550	TACT SWITCH, POWER

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION
S202			PU57550	TACT SWITCH, EJECT
SLD1			PQ30658-3	SHIELD CASE (A)
SLD2			PQ30645	SHIELD PLATE
HD1			PU56940	LED HOLDER
WC1			PU56729	WIRE CLAMP
			PU58117C	IFR BOARD ASS'Y [33]
THE FOLLOWING PARTS ARE INCLUDED IN PU58117C				
D303			PD49PI	PIN PHOTO DIODE
			OR HP-5FR2	PIN PHOTO DIODE
R304			QRD162J-104	CR
R305			—	—
R306			—	—
R307			—	—
R308			QRD162J-102	CR
C305			QEK60JM-476	E CAP
L301			PU57631	TRAP COIL

			PU58016	AUDIO/CTL HEAD PWB [12]
CN1			PU54537-5	CAP HOUSING
CN2			PU54537-2	CAP HOUSING

			PU55111	END SENSOR BOARD [13]
Q1			PT352V	PHOTO TRANSISTOR
			OR PN202SR	PHOTO TRANSISTOR
C1			QCF11HP-103A	C CAP

			PU35632A3	MODE SENSOR PWB ASS'Y [14]
PS1			PU57650-1-1	PHOTO SENSOR
R1			QRD161J-561	CR

			PU58017	CASSETTE LED BOARD [15]
D1			GL-450V	LED
HLD1			PQ30242-1-1	LED HOLDER
			PU55825-1-4	CUE HEAD
SCR1			DPSP3006Z	SCREW

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION

			PU22317A-01	DEMODULATOR PWB ASS'Y [16], (E/EG)
△		IC1	M51365SP	INTEGRATED CIRCUIT
		IC2	TDA3800GS	INTEGRATED CIRCUIT
		Q3	2SC3354S,T	TRANSISTOR
		Q4	2SC3311AR,S	TRANSISTOR
		Q5	2SC2655OY	TRANSISTOR
		OR	2SD1292Q,R	TRANSISTOR
		Q11	DTC114ES	D TRANSISTOR
		Q12	DTC114ES	D TRANSISTOR
		Q13	DTC114ES	D TRANSISTOR
		Q14	DTC114ES	D TRANSISTOR
		Q15	2SD1450S,T	TRANSISTOR
		Q16	2SD1450S,T	TRANSISTOR
		Q17	2SC3311AR,S	TRANSISTOR
		Q18	2SC3311AR,S	TRANSISTOR
		Q19	DTC144ES	D TRANSISTOR
		D2	1SS133	DIODE
		D5	1SS133	DIODE
		D6	1SS133	DIODE
		R9	QRD161J-331	CR
		R10	—	—
		R11	—	—
		R12	QRD161J-101	CR
		R13	QRD161J-150	CR
		R14	QRD161J-101	CR
		R15	QRD161J-331	CR
		R16	QRD161J-821	CR
		R17	—	—
		R18	QRD161J-824	CR
		R19	QRD161J-331	CR
		R20	—	—
		R21	QRD161J-822	CR
		R22	QRD161J-222	CR
		R23	QRD161J-272	CR
		R24	QRD161J-223	CR
		R25	—	—
		R26	QRD161J-470	CR
		R27	QRD161J-561	CR
		R28	—	—
		R29	—	—
		R30	QRD161J-101	CR
		R31	QVZ3518-103	VR, SEPARATION
		R32	—	—
		R33	—	—
		R34	—	—
		R35	—	—
		R36	QRD161J-331	CR
		R37	—	—
		R38	—	—
		R39	—	—
		R40	—	—
		R41	—	—
		R42	—	—
		R43	—	—
		R44	QRD161J-123	CR
		R45	QRD161J-821	CR
		R46	QRD161J-102	CR
△		R47	QRZ0052-120	FR
		R48	QRD161J-273	CR

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION

			PU56460-1-2	CASSETTE HOUSING BOARD [18]
Q1			PT-352V	PHOTO TRANSISTOR
	OR		PN202SR	PHOTO TRANSISTOR
C1			QCF11HP-103A	C CAP
C2			QCF11HP-223A	C CAP
C3			QCF11HP-223A	C CAP
CN1			PU49215-109	CAP HOUSING

			PU35632D1	DECK TERMINAL PWB ASS'Y [20]
Q1			2SD636Q, R, S	TRANSISTOR
Q2			2SD636Q, R, S	TRANSISTOR
D1			1SS133	DIODE
D2			1SS133	DIODE
R1			—	—
R2			QRD161J-221	CR
R3			QRD161J-181	CR
R4			QRD161J-822	CR
R5			QRD161J-152	CR
R6			QRD161J-272	CR
R7			QRD161J-822	CR
R8			QRD161J-152	CR
R9			QRD161J-272	CR
R10			QRD161J-102	CR
R11			QRD161J-272	CR
R12			QRD161J-102	CR
R13			QRD161J-272	CR
CN1			PU43351-12	CAP HOUSING
CN2			PU49215-4	CAP HOUSING
CN3			PU51260-10	CAP HOUSING
CN4			PU49215-3	CAP HOUSING
CN5			PU43351-6	CAP HOUSING
J1			PU57747- 080	JUMP WIRE

			PU58081	SUPPLY SENSOR BOARD [21]
PS2			GP2L04BD	PHOTO SENSOR
D4			HZS5. 6EB1	ZENER DIODE
HD1			PQ41705	SENSOR HOLDER

			PU35632A2	TU REEL SENSOR PWB ASS'Y [22]
PS1			GP2L04BD	PHOTO SENSOR
HD1			PQ41391	SENSOR HOLDER
D3			HZS5.6EB1	ZENER DIODE

#	△	REF. NO.	PART NO.	PART NAME, DESCRIPTION

			PU57725-1-2	MODE MOTOR BOARD [30]
C1			QEN61HM-105	NP CAP
C2			QCF11HP-223	C CAP
C3			QCF11HP-223	C CAP
CN1			PU49215-102	CAP HOUSING
LUG1			PQ41430	EARTH LUG

			PU36171A	OUTLET PWB ASS'Y [31], (E/EG)
△			QMC9021-001	AC OUTLET
△ HD1			PU59408	FUSE HOLDER, F4
△			A74316	TAB
△			QMP3980-200	POWER CORD
△			QHS3771-108	STRAIN RELIFE
△ BRT1			PQ31462-1-2	BRACKET
THE FOLLOWING FUSE ARE NOT INCLUDED IN PU36171A.				
△ F4			QMF51E2-2R0	FUSE

			PU36172A-01	P TRANS PWB ASS'Y [32], (E/EG)
			PU36172B	P TRANS PWB ASS'Y [32], (EK)
△ C101			QFZ9022-472	MM CAP
△ HD1			PU59408	FUSE HOLDER, X2, F1
CN3			PU58844-3	CAP HOUSING
△ LF1			PU59581	LINE FILTER, (EK)
△ LF2			PU59586	LINE FILTER, (EK)
△ TAB1			A74316	TAB, X2, (EK)
BW			PU59499-3	B1, B2, E/EG
BW			PU59499-2	BUS WIRE, X4, (EK)
THE FOLLOWING FUSE IS NOT IN PU36172A-01.(E/EG)				
THE FOLLOWING FUSE IS NOT IN PU36172B. (EK)				
△ F1			QMF51E2-R80	FUSE

			PU22345A2-02	POWER REG (2) PWB ASS'Y [34]
Q7			2SD1785	TRANSISTOR
△ HTS1			PQ31423	HEAT SINK
SCR1			SPSP3010Z	SCREW, Q7
SCR2			DPSP3008Z	ASS'Y SCREW

			PU22323A-01	PRE/REC PWB ASS'Y [35], (E/EG)
			PU22323B-01	PRE/REC PWB ASS'Y [35], (EK)
IC1			HA11870ANT	INTEGRATED CIRCUIT
Q1			DTC124EF	D TRANSISTOR

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION	#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
Q2			2SC2021Q,R,S	TRANSISTOR	R43			QRD162J-223	CR
Q3			—	—	R44			QRD161J-223	CR
Q4			2SA937	TRANSISTOR	R45			QRD161J-152	CR
Q5			2SC2021Q,R,S	TRANSISTOR	R46			QRD161J-151	CR
Q6			2SC2021Q,R,S	TRANSISTOR	R47			QRD161J-222	CR
Q7			2SC2021Q,R,S	TRANSISTOR	R48			QRD161J-102	CR
Q8			—	—	R49			—	—
Q9			—	—	R50			QVZ3521-471	VR, REC FM
Q10			2SC2021Q,R,S	TRANSISTOR					
Q11			2SC2021Q,R,S	TRANSISTOR	R51			QRD161J-561	CR
Q12			DTC124EF	D TRANSISTOR	R52			QRD161J-223	CR
Q13			—	—	R53			QRD161J-223	CR
Q14			2SA937	TRANSISTOR	R54			QRD161J-222	CR
Q15			2SC2021Q,R,S	TRANSISTOR	R55			QRD161J-102	CR
					R56			QRD161J-151	CR
D1			1SS133	DIODE, (E/EG)	R57			QRD161J-820	CR
D2			1SS133	DIODE, (E/EG)	R58			QRD161J-820	CR
D3			1SS133	DIODE	R59			QRD161J-820	CR
D4			1SS133	DIODE	R60			QRD161J-820	CR
D5			1SS133	DIODE					
D6			1SS133	DIODE	R61			QRD161J-102	CR
					R62			QRD161J-102	CR
R1			QVZ3514-222	VR, LP PB EQ	R63			QRD161J-182	CR
R2			QVZ3514-222	VR, SP PB EQ	R64			QRD161J-222	CR
R3			—	—	R65			QRD161J-102	CR
R4			QRD161J-102	CR	R66			QRD161J-102	CR
R5			QRD161J-222	CR	R67			QRD161J-124	CR
R6			QRD161J-561	CR					
R7			QRD161J-561	CR	C1			QCVB1CN-103	C CAP
R8			QRD161J-681	CR	C2			QCB1HJ-121	C CAP
R9			QRD161J-153	CR	C3			QCVB1CN-103	C CAP
R10			QRD161J-333	CR	C4			—	—
					C5			QCSB1HJ-470	C CAP
R11			QRD161J-272	CR	C6			—	—
R12			QRD161J-122	CR	C7			QCSB1HJ-330	C CAP
R13			QRD161J-681	CR	C8			QCVB1CN-103	C CAP
R14			QRD161J-821	CR	C9			QCSB1HJ-180	C CAP
R15			QRD161J-223	CR	C10			QCSB1HJ-330	C CAP
R16			QRD161J-223	CR					
R17			QRD161J-471	CR	C11			—	—
R18			—	—	C12			QCSB1HJ-220	C CAP
R19			QRD161J-223	CR	C13			QCSB1HJ-470	C CAP
R20			QRD161J-473	CR	C14			QCC11EJ-473	C CAP
					C15			QCVB1CN-103	C CAP
R21			QRD161J-102	CR	C16			QEK60JM-476	E CAP
R22			QRD161J-102	CR	C17			QCB1HJ-102	C CAP
R23			QRD161J-333	CR, (E/EG)	C18			QCVB1CN-103	C CAP
R24			QRD161J-223	CR, (E/EG)	C19			QCC11EJ-682	C CAP
R25			QRD161J-272	CR	C20			QCB1HJ-820	C CAP
R26			QRD161J-102	CR					
R27			QRD161J-102	CR	C21			QCSC1HK-5R6	C CAP
R28			QRD161J-102	CR	C22			—	—
R29			—	—	C23			QETC1HJ-104	E CAP
R30			QRD161J-103	CR	C24			QCVB1CN-103	C CAP
					C25			QCVB1CN-103	C CAP
R31			QRD161J-474	CR	C26			QCB1HJ-681	C CAP
R32			—	—	C27			QCC11EJ-222	C CAP
R33			QRD161J-223	CR	C28			QCVB1CN-103	C CAP
R34			QRD161J-223	CR	C29			QETC0JM-476	E CAP
R35			QRD161J-223	CR	C30			QCVB1CN-103	C CAP
R36			QRD161J-223	CR					
R37			QRD161J-102	CR	C31			QCVB1CN-103	C CAP
R38			QRD161J-271	CR	C32			QCVB1CN-103	C CAP
R39			—	—	C33			QCVB1CN-103	C CAP
R40			QVZ3521-152	VR, SP REC COLOUR	C34			QCSB1HJ-270	C CAP
					C35			QCB1HJ-121	C CAP
R41			QVZ3521-152	VR, LP REC COLOUR	C36			QCB1HJ-121	C CAP
R42			QRD161J-331	CR	C37			QCVB1CN-103	C CAP
					C38			QCVB1CN-103	C CAP

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
C39			QCVB1CN-103	C CAP
C40			QETCOJM-476	E CAP
C41			QCVB1CN-103	C CAP
C42			QCVB1CN-103	C CAP
C43			QFZ0096-224	E CAP
C44			—	—
C45			—	—
C46			QFZ0096-224	E CAP
C47			QCVC1CN-103	C CAP
C48			QCVC1CN-103	C CAP
C49			QFZ0096-224	E CAP
C50			—	—
C51			—	—
C52			QFZ0096-224	E CAP
C53			QCVB1CN-103	C CAP
C54			QCBB1HJ-102	C CAP
C55			QCBB1HJ-681	C CAP
C56			QCVB1CN-103	C CAP
C57			QCSB1HJ-180	C CAP
C58			—	—
C59			QCC11EJ-473	C CAP
C60			QCBB1HJ-331	C CAP
C61			QCBB1HJ-331	C CAP
C62			QCBB1HJ-331	C CAP
C63			QCBB1HJ-331	C CAP
C64			QCVB1CN-103	C CAP
C65			QCBB1HJ-471	C CAP
L1			PU59152-180J	PEAKING COIL
L2			—	—
L3			PU59152-470J	PEAKING COIL
L4			PU59152-680J	PEAKING COIL
L5			PU59152-330J	PEAKING COIL
L6			PU59152-151J	PEAKING COIL
L7			PU59152-330J	PEAKING COIL
L8			PU59152-680J	PEAKING COIL
L9			PU48530-271	PEAKING COIL
L10			PU48530-222J	PEAKING COIL
L11			PU48530-101J	PEAKING COIL
L12			PU48530-821J	PEAKING COIL
L13			PU48530-101J	PEAKING COIL
L14			PU59152-220J	PEAKING COIL
L15			PU59152-680J	PEAKING COIL
L16			PU48530-221J	PEAKING COIL
L17			PU48530-101J	PEAKING COIL
L18			PU59152-220J	PEAKING COIL
Δ TH1			ERT-D2FGL101S	THERMISTOR
EQ1			PU53501-4	EQUALIZER
LPF1			PU58705	LOW PASS FILTER
LPF2			PU54988	LOW PASS FILTER
CN1			PU58844-8	CAP HOUSING
CN2			PU58844-107	CAP HOUSING
CN3			—	—
CN4			PU58844-103	CAP HOUSING
CN5			PU58844-102	CAP HOUSING
TP			PU57545	TEST PIN,4,6,11,14,25,GND
SLD1			PU59397	SHIELD CASE
SLD2			PU59398	SHIELD COVER
SLD3			PU59399A	SHIELD PLATE ASS'Y
TAB1			A74017	TAB

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION

			PU36161C	JUNCTION PWB ASS'Y [36], (E/EG)
			PU36161A	JUNCTION PWB ASS'Y [36], (EK)
IC1			M47029S	INTEGRATED CIRCUIT
D1			1SS133	DIODE
D2			1SS133	DIODE
D3			1SS133	DIODE
D4			1SS133	DIODE
D5			1SS133	DIODE
R1			QRD161J-473	CR
R2			QRD161J-103	CR
R3			QRD161J-103	CR
R4			QRD161J-103	CR
R5			—	—
R6			QRD161J-105	CR
R7			QRD161J-472	CR
RA1			RMLS3J104	REGISTOR ARRAY
C1			QCS31HJ-101	C CAP
C2			QCS31HJ-101	C CAP
CA1			PU58386	C. NETWORK
CF1			PU51190	CERAMIC FILTER
CN1			PU58844-6	CAP HOUSING
CN2			PU58844-7	CAP HOUSING, (E/EG)
			PU58844-8	CAP HOUSING, (EK)
CN3			PU58844-5	CAP HOUSING
CN4			PU58844-3	CAP HOUSING
CN5			PU58015-018	CAP HOUSING
CN6			PU58844-12	CAP HOUSING
CN7			PU58844-7	CAP HOUSING
JCN1			PU50355-20	CAP HOUSING
JCN2			PU50355-20	CAP HOUSING

			PU11448A2	BACK UP BOARD ASS'Y [37]
R701			QRD161J-470	CR
			PU59281	BATTERY
CN701			PU58844-2	CAP HOUSING
			PQ42897	D. FACE TAPE

			PU22461B-01	REMAIN BOARD ASS'Y [38], (EK ONLY)
IC801			M50740-616SP	INTEGRATED CIRCUIT
IC802			UPD4013BC	INTEGRATED CIRCUIT
			OR TC4013BP	INTEGRATED CIRCUIT
			OR BU4013B	INTEGRATED CIRCUIT
			OR M4013BP	INTEGRATED CIRCUIT
IC803			UPD4023BC	INTEGRATED CIRCUIT
			OR TC4023BP	INTEGRATED CIRCUIT
IC804			UPD74HC74C	INTEGRATED CIRCUIT
			OR TC74HC74P	INTEGRATED CIRCUIT
D801			RD7.5EB2	ZENER DIODE
D802			1SS133	DIODE

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
D830			1SS133	DIODE
R801			QRD161J-472	CR
R802			QRD161J-103	CR
R803			QRD161J-821	CR
R804			QRD161J-105	CR
R805			QRD161J-103	CR
R806			QRD161J-103	CR
R807			QRD161J-472	CR
R808			QRD161J-472	CR
R809			QRD161J-103	CR
R810			QRD161J-103	CR
R811			QRD161J-472	CR
R812			QRD161J-103	CR
R813			QRD161J-103	CR
R814			QRD161J-104	CR
R815			QRD161J-103	CR
R816			QRD161J-102	CR
R817			QRD161J-102	CR
R818			QRD161J-102	CR
R819			QRD161J-102	CR
R820			QRD161J-153	CR
R821			QRD161J-103	CR
R822			QRD161J-102	CR
R823			QRD161J-102	CR
R824			QRD161J-102	CR
R825			QRD161J-102	CR
R826			—	—
R827			—	—
R828			—	—
R829			—	—
R830			QRD161J-333	CR
R831			QRD161J-102	CR
RA801			QRB047J-103	RESISTOR ARRAY
RA802			QRB127J-103	RESISTOR ARRAY
C801			QEK61HM-105	E CAP
C802			QCS31HJ-390	C CAP
C803			QCS31HJ-390	C CAP
C804			QEE51CM-106	E CAP
C805			QCF31HP-223	C CAP
C806			QCF31HP-102	C CAP
C807			QCF31HP-102	C CAP
C808			QCF31HP-223	C CAP
C809			QCF31HP-223	C CAP
C830			QCVB1CM-103	C CAP
C831			QCB81HJ-471	C CAP
L801			PU53223-100J	PEAKING COIL
CF801			PU56292	CERAMIC FILTER
CN801			PU58844-13	CAP HOUSING
CN802			PU58844-8	CAP HOUSING
CN803			PU58844-5	CAP HOUSING

#	Δ	REF. NO.	PART NO.	PART NAME, DESCRIPTION
			PQ10355-001	REMOCON PWB ASS'Y (45), (E/EG)
				REMOCON PWB ASS'Y (45), (EK)
IC1			MN158452ESD	INTEGRATED CIRCUIT
Q1			2SB822(QR)	TRANSISTOR
Q2			2SD601(RS)	TRANSISTOR
Q3			UN2214	D TRANSISTOR
D1			SE303AY	LED
D2			SE303AY	LED
D3,D6			MA151WK	DIODE
D4			—	—
D5			MA151K	DIODE, (E/EG)
R1			QRD141J-1R2	CR
R2			QRD141J-1R2	CR
R3			NRS181J-470NM	CHIP CR
R4			NRS181J-471NM	CHIP CR
R5			NRS181J-222NM	CHIP CR
R6			NRS181J-102NM	CHIP CR
R7			NRS181J-154NM	CHIP CR
R8			NRS181J-332NM	CHIP CR
R9			NRS181J-101NM	CHIP CR
R10			NRS181J-473NM	CHIP CR
R11			NRS181J-473NM	CHIP CR
R12			NRS181J-473NM	CHIP CR
R13			—	—
R14			—	—
R15			NRS181J-224NM	CHIP CR
C1			QER51HM-106	E CAP
C2			PU57672-020	TR CAP
C3			QCT05CH-220	C CAP
C4			QCY41HK-101	C CAP
C5			QCY41HK-101	C CAP
C6			QER51JM-107	E CAP
C7			QER51JM-107	E CAP
C8			PQ10355-023	C CAP
C9			PQ10355-023	C CAP
C10			PQ10355-023	C CAP
X1			XF38G	CRYSTAL
X2			CSB455EB1	CRYSTAL
S46			PQ10355-021	SLIDE SWITCH
S47			PQ10355-020	TACT SWITCH
BZ1			PQ10355-022	BUZER
TML1			PQ10355-017	BATTERY TERMINAL (+)
TML2			PQ10355-018	BATTERY TERMINAL (-)